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States How Soil Bank May Affect Insect Numbers

USDA Report Covers Scope of Soil Bank In Relation to Pests

WASHINGTON — How the soil bank program is likely to relate to potential insect conditions, including their abundance, is the subject of a statement just released by the U.S. Department of Agriculture.

The study, made under the joint auspices of the Agricultural Research Service and the Federal Extension Service of USDA, takes into consideration both the acreage reserve and the conservation reserve phases of the soil bank, and the number of years set for the duration of each.

There is general belief that insect populations will be affected by the program, the statement says. These changes are expected to be more often local or regional than national, and the effects either harmful or beneficial depending upon whether the increased insect population is that of destructive insects or otherwise. The kind of insect involved will depend somewhat on the region and the use made of reserved acreages. Under some circumstances, the buildup in populations may be rapid, and in others, a gradual change may take place over a longer period of time.

Here are some specific examples of population changes that may arise, based on appraisals by entomologists in the state and federal service. Among the destructive pests are the following:

Grasshoppers, especially Melanoplus mexicanus, M. bivittatus and M. differentialis would find in the reserved acreages an increased amount of more favorable places for egg laying and a greater variety of desirable food plants. The acres in the soil bank are likely to provide more generally desirable habitats for a variety of spe-

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Non-Farm Consumption of Plant Food About 10% of Total Used

How much fertilizer is bought each year by non-farm users in the United States?

Nobody knows for sure. But this growing market probably takes 2-2.5 million tons, or at least 10%, of the 20-odd million tons current total annual consumption.

At a conservative average price of $75 per ton, the non-farm market adds up to $150 million to $187.5 million annually. Some estimates are even higher.

While most attention has been focused on the rapid expansion in farm use of fertilizer, which has been variously described as "spectacular" or "phenomenal," non-farm use has been spurting upward twice as fast. Moreover, while total consumption has tended at least temporarily to level off in the last two or three years, non-farm use probably has continued to climb.

As important as this segment of the fertilizer market has become, most authorities believe that there still remains a considerable untapped potential. The trend toward suburban development of both residential and industrial of formerly agricultural lands, the vast highway building program, expansion of public parks, playgrounds and recreational areas—these and many other factors create new opportunities for non-farm fertilizer use. Add to this an increasing awareness on the part of the non-farm population of the advantages of using fertilizer on turf, flowers, trees, shrubs and home gardens, and the outlook can be conservatively described as "very encouraging."

Despite its importance, very little is known about the characteristics of the non-farm market. Official statistics are meager.

Most fertilizer used for non-farm purposes is bought from retail stores such as hardware dealers, garden supply stores, nurseries, fuel dealers, supermarkets, drug stores, etc. It is probable that at least 120,000 retail dealers sold fertilizer in 1956. It is impractical to make a direct census of dealers or consumers, except on a sample basis, because of the enormous number of people involved.

Most of these dealers buy at least part of their fertilizer—probably most of the "specialty" goods—from wholesalers. In many cases, these wholesalers are located in another state or county. Manufacturers, therefore, are not able to determine what proportion of the fertilizer they ship to wholesalers, jobbers and dealers is used for any specific purpose, nor even where it eventually is to be used.

This study consisted of an analysis of available statistics coupled with a new sample survey. Available statistics were used to draw some conclusions about geographical distribution of the non-farm market. The sample survey was conducted largely to determine estimated non-farm use of fertilizer by type of user.

Private homes account for about half the total consumption of ferti-

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TABLE II. Use of Fertilizer by Private Households by Regions, 1956

Region	Total consumption* (tons)	Proportion using fertilizer† (%)	Average use: By all households‡ (lb.)	Average use: Per household using fertilizer¶ (lb.)
New England	58,500	59	45	71
Middle Atlantic	235,000	33	47	142
South Atlantic	332,500	66	133	201
South Central	225,000	49	70	143
North Central	192,000	48	32	67
Western	56,000	14	16	114
Total	1,099,000	40	51	127

*Average use per household as derived from the sample survey multiplied by the number of urban and rural non-farm households in each region and in the U.S. as derived from Census data.
†Weighted to reflect the proportion of the total population in the various classes of cities and towns.
‡Derived from the sample survey.
¶Average rate of use by all households divided by proportion using fertilizer.

Republicans Reported to be Working on Revival of Compensatory Farm Pay Plan

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—Reliable evidence has turned up here that a yet-to-be-disclosed political force is working to replace Ezra Taft Benson as secretary of agriculture and at the same time submit to Congress a modified compensatory payment plan to farmers. This plan—which is the old Brannan plan in greatly revised form—may contain some aspects which will be disturbing to the U.S. farm chemical industry.

Among some Republican political circles the decision has now been reached that Mr. Benson is a political liability who will have to be sacrificed for the good of the party—particularly if the Republicans hope to retain their present seats in the House or to recapture control of that chamber.

The Republican House leadership, having reached the above decision, now contemplates the removal of Mr. Benson. He would be replaced by an outstanding Republican who can command the respect of both sides of the House. This new USDA boss might very probably be Clifford C. Hope, formerly House Agriculture Committee chairman, who would be expected to take to Congress a two-fold proposal. First would be establishment of a bi-partisan or non-partisan commission to study the farm problem. Second, the commission would report to Congress on a new program—with emphasis on a Brannan or compensatory direct payment plan to farmers for the difference in the market price and a modified level of parity price

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Western Group Hears Talks On Weeds, Nematodes, Laws

By LAWRENCE A. LONG
Editor of Croplife

SAN MATEO, CAL. — Discussions on weed control, nematodes, regulatory problems, and factors involved in what influences farmers to purchase pesticides and other chemicals, made up the main portions of the eighth annual convention of the Western Agricultural Chemicals Assn. at the Villa Hotel, San Mateo, Cal., Oct. 7-8. The group also elected officers to serve for the coming year.

Drs. J. M. Bohlen and G. M. Beal, Iowa State College, well known sociologists and economists, gave a flannel-board presentation on "What Motivates Growers to Buy Pesticides," to start off the general sessions of the meeting. They explained that results of their studies were based on personal interviews in the Southeast, Northeast and the Middlewest, with family-sized, family-operated farms, where the farmer himself makes most of the decisions about what he will buy and how much. Help on most of these farms comprised members of the family plus a possible hired hand

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Editor's Note

This statistical article was prepared by Arnon L. Mehring under the auspices of the National Plant Food Institute, Washington, D.C. The article also appears in the Fall, 1957 issue of "Plant Food Review," published by the NPFI. Mr. Mehring was formerly senior chemist and later fertilizer staff specialist with the U.S. Department of Agriculture in charge of fertilizer statistics. He is presently a private fertilizer consultant.

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NON-FARM FERTILIZER USE

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lizer for non-farm purposes. The other 50% is divided among a wide variety of users, mostly public and commercial.

The breakdown of non-farm fertilizer consumption by type of user shown in Table I was based on the new sample survey. The survey included nearly 3,000 personal interviews in more than 50 cities and towns of every size and kind in 15 states east of the Mississippi. To round out the sample, 2,000 questionnaires were sent to non-farm users in other states. A detailed study was made of Washington, D.C. and its general vicinity. Care was taken in each case to secure representative samples.

About 40% of all non-farm homes in the U.S. used at least some fertilizer in 1956. The average quantity used amounts to a surprisingly high 51 lb. to the home. Regionally, average per-home use varies from 16 lb. in the Far West to 133 lb. in the South Atlantic. (See Table II.)

Every one of the 74 golf courses included in the survey used commercial fertilizer in 1956. The quantities ranged from one ton for a 9-hole course in a city of 5,000 in Indiana to 258 tons for an 18-hole course in North Carolina. The average was 44 tons, of which 43% consisted of organics such as activated sewage sludge, processed tankage, cottonseed meal, tobacco stems and dried manure. About one-fifth of the superintendents used some urea-formaldehyde products on their greens.

Most of the large airports, including both commercial and military, used commercial fertilizer in 1956. The airports covered in the survey averaged 216 acres of turf. Maximum usage encountered was 138 tons. Most small ports, patronized by light weight or private planes, used relatively little fertilizer except when originally constructed.

While most industrial plants use little or no fertilizer, a few use relatively large quantities. This accounts for the large "standard error" in this category. One New Jersey plant used over 100 tons on lawns and shrubbery during 1956. Statistically, it is considered unlikely that the actual non-farm consumption would have varied from that reported in the table by more than the amount of the standard error.

The standard errors also are relatively large for municipal parks, athletic fields, resort hotels and some other types of users either because of the small number included in the sample, or the wide range in size of fertilized areas. For example, the park area of the 43 cities and towns included in the survey which used fertilizer varied from 0.1 acre to over 5,000 acres. Of the six cities sampled that used no commercial fertilizer in parks, five were under 25,000 population, and four of the six used sewage sludge from their own disposal plants.

Of the 32 State Highway Departments responding to the survey, 26 used fertilizer and 6 used none. Of those that did not report, most are thought to have used little or none. Total highway use in 1956 is estimated to have been 21,868 tons. Seven states alone (N.C., Ga., Ohio, Fla., N.Y., Miss., and Wis.) accounted for nearly 15,000 tons, or two-thirds of the total in the present survey.

Total consumption by State Highway Departments in 1940 is reported by the National Research Council to have been 7,733 tons at a cost of $185,276. A survey conducted by the American Chemical Society indicates that 29 states spent about $895,000 for fertilizer in 1956 and that 31 states expected to spend $1,148,700 in 1957.

The new 41,000 mile Interstate highway program, construction of which is to be spread over the next 9 to 13 years, is expected to increase greatly the use of fertilizer for roadside development purposes. The new highways will average 22 acres of turf per mile, or a total of 900,000 acres. If this total acreage were to be fertilized at the average 1956 rate, it would require 186,300 tons for initial turf establishment only.

The Fish and Wildlife Service used 742 tons of fertilizer in 91 fish hatcheries in 1956. Fertilizer is used only in hatcheries for warm water fish, so that none was used in the northernmost states.

Farm fish ponds were not included in these data, but it is estimated that more than 100,000 tons of fertilizer are used in farm ponds annually. About 70% of all farm ponds contain fish, and about 60% of these are fertilized regularly.

The four recreational camps sampled all used fertilizer, and one of the fishing camps used a relatively large quantity. It is probable, however, that many of the summer camps for children use little or none.

The figure of 20,000 tons assigned to the "all other" category is purely a guess and probably is accurate only to the extent of being of the proper order of magnitude. Principal users in this category are military establishments for which no figures were obtained.

It should be noted that total non-farm consumption for 1956 of 2,124,000 tons, as determined from the sample survey, checks closely with indicated 1954 non-farm consumption of 2,241,210 tons as derived from available official data. (See Table IV.) While the closeness of these two figures would seem to support the validity of both, it is likely that non-farm consumption in 1956 actually was greater than in 1954.

That non-farmers as well as farmers tend to buy most of their fertilizer in large packages is indicated from a study of sales by package size in four urban communities which is summarized in Table III. In all four the 80-lb. bag accounted for most of the tonnage. Although many different kinds and sizes of bags, bottles, boxes, envelopes and tin cans containing less than 50 lb. each were sold in each place, all of them combined totaled only about three percent by weight each in Winchester, Virginia and Prince Georges County, Maryland (a Washington, D.C. suburb), 15% in Gettysburg, Pennsylvania, and 16% in Winsted, Connecticut.

It seems likely that the proportion by weight of small package

TABLE I. Estimated U.S. Total Non-Farm Fertilizer Consumption by Types of Consumers, 1956*

Type of consumer	Reports (number)	Proportion using fertilizer (per cent)	Average amount used (lb.)	Average area fertilized (acres)	Average application rate† (lb. per acre)	Total consumers (number)	Total consumption‡ (tons)	Standard error (tons ±)
Homes	1,621	45	51	0.1	503	43,136,000¶	1,099,968	±90,586
Golf courses	74	100	88,121	68.	1,296	4,504§	198,626	11,651
Airports	412	75	45,164	216.	209	6,839	154,438	20,520
Athletic fields	13	92	7,065	8.	883	40,208**	142,035	55,380
Industrial plants	180	16	8,495	5.	1,699	22,000††	93,445	78,870
Municipal parks‡‡	49	88	95,027	608.	156	1,907	90,608	28,510
High schools	10	80	4,028	8.	503	27,068	54,515	29,599
College campuses	29	86	26,222	52.	504	3,260	42,742	8,253
Seasonal hotels	11	73	24,182	18.	1,343	3,418	41,327	40,223
Government bldgs.¶¶	22	64	1,542	1.6	969	50,000††	38,550	21,800
Churches	48	50	209	.2	1,045	300,056	31,356	9,602
Highways	32	80	892,591	2,157.	414	49	21,868	686
Hospitals	12	75	5,080	9.	678	6,956	17,668	8,500
Grade schools	258	54	185	.5	370	134,429	12,440	1,748
Cemeteries, city and church type§§	17	71	2,400	13.	185	10,000††	12,000	4,250
Commercial buildings	433	5	7	.01	700	3,000,000††	10,500	2,150
Tourist courts	56	77	671	.9	686	29,432	9,874	1,560
Memorial cemeteries	36	100	18,234	22.	829	1,000††	9,117	3,232
State and county parks	44	61	5,342	10.	534	3,187***	8,513	2,236
Recreational camps†††	4	100	1,970	1.7	1,157	8,392	8,266	2,694
Clubs, lodges and other organizations	10	80	132	.2	660	50,000††	3,300	2,175
Fish hatcheries, government‡‡‡	28	96	93,618	117.	828	35	2,388	100
Fish hatcheries, commercial	13	84	9,295	34.	396	152	704	405
All other¶¶¶	0						20,000	
Total							2,124,248	

*Based on a sample survey conducted for the National Plant Food Institute.
†Average amount used divided by average area fertilized.
‡Average amount used multiplied by total consumers in each class, divided by 2,000 to convert to tons.
¶Urban and rural non-farm households, March, 1956, Census, Series P—20, No. 76.
§Census of Business, 1955. Includes 1,014 commercial courses, 2,966 membership clubs (Recreation & Park Yearbook, 1956); 478 municipal and county, and 16 state.
**Recreation & Park Yearbook, 1956. Includes 153 state and 23,964 municipal ball fields, 13,188 tennis courts and 231 bowling greens (Census); 672 commercial, and an estimated 2,000 colleges.
††Estimated.
‡‡Recreation & Park Yearbook. 1907 municipalities had in 1956: 20,417 parks, 10,833 picnic centers, 58 arboretums, and 614 public gardens.
¶¶Capitols, office buildings, post offices, court houses, police stations, public libraries, etc.
§§Includes three national cemeteries and one pet cemetery.
***Recreation & Park Yearbook. State parks, 1,896; county parks, 847; historic sites and monuments, 444.
†††Sample includes one girls' summer camp and three fish and hunt clubs.
‡‡‡Complete enumeration for federal government, 20 states and one city hatchery. Includes natural streams and lakes fertilized in two states, but not farm fish ponds. Only warm-water hatcheries use fertilizer.
¶¶¶Estimated. Includes military establishments, levees, etc.

TABLE III. Non-Farm Fertilizer Sales by Size of Package—Selected Communities, 1956

Package size (lb.)	Gettysburg, Pa.* Packages (No.)	Gettysburg, Pa.* Proportion of total weight (%)	Prince Georges Co., Md.† Packages (No.)	Prince Georges Co., Md.† Proportion of total weight (%)	Winchester, Va.‡ Packages (No.)	Winchester, Va.‡ Proportion of total weight (%)	Winsted, Conn.* Packages (No.)	Winsted, Conn.* Proportion of total weight (%)
Less than 1	1,560	0.14	1,819	0.02	424	0.02	1,763	0.48
1 and 1½	513	.38	1,705	.09	553	.12	272	.25
2-4	570	.90	91	.01	115	.05	72	.11
5	661	1.97	1,770	.49	468	.48	866	3.32
6-9	—	—	63	.02	—	—	30	.17
10-15	293	1.64	1,957	1.08	482	1.00	599	4.59
25¶	361	5.44	730	1.01	269	1.39	388	7.44
50§	745	22.72	1,921	5.29	809	8.38	543	20.82
80	1,291	63.08	19,436	85.69	4,807	79.64	908	55.69
100	61	3.73	1,142	6.30	431	8.92	93	7.13
Totals	6,055	100.00	30,634	100.00	8,360	100.00	4,738	100.00

*Complete enumeration.
†Estimated to be 27% of total sales. Enumeration included about one half of total dealer. Considerable quantities were sold in bulk and a fairly large tonnage of liquid fertilizer was sprayed on lawns by custom operators.
‡Estimated to be 87% of total sales.
¶Includes a few 20, 22 and 30 lb. packages.
§Includes a small number of 40 lb. packages.

TABLE IV. Indicated 1954 Non-Farm Fertilizer Consumption by States

	Total deliveries* (tons)	—Farm consumption†— Total (tons)	—Farm consumption†— Standard error (tons)	Indicated non-farm consumption Total‡ (tons)	Indicated non-farm consumption Average per capita¶ (lb.)
Maine	172,057	169,870	± 5,079	2,187	6
New Hampshire	16,122	17,829	775	**	**
Vermont	44,589	45,664	1,279	**	**
Massachusetts	86,179	57,156	1,189	29,023	13
Rhode Island	15,151	5,788	509	9,363	24
Connecticut	89,799	66,827	2,196	22,972	24
New England	423,897	363,134		63,545	
New York	603,079	516,900	6,511	86,179	12
New Jersey	286,149	237,580	5,826	48,569	21
Pennsylvania	702,678	608,640	4,991	94,038	19
Delaware	94,691	75,080	2,794	19,611	14
Maryland	311,879	264,630	4,207	47,249	44
District of Columbia	2,836	0	0	2,836	7
West Virginia	73,805	67,810	1,763	5,995	8
Middle Atlantic	2,075,117	1,770,640		304,477	
Ohio	1,059,835	972,220	9,106	87,615	25
Indiana	1,150,491	1,051,302	5,815	99,189	61
Illinois	1,381,932	1,235,176	12,220	146,856	37
Michigan	604,577	568,407	6,278	36,170	13
Wisconsin	444,079	436,372	3,449	7,707	6
East North Central	4,640,914	4,263,477		377,537	
Minnesota	319,111	318,716	3,688	395	0.4
Iowa	630,560	622,372	3,485	8,188	9
Missouri	771,424	727,133	5,406	44,291	29
North Dakota	46,201	54,011	1,374	**	**
South Dakota	30,406	38,544	959	**	**
Nebraska	196,884	219,678	3,431	**	**
Kansas	233,871	228,114	3,239	5,757	8
West North Central	2,228,457	2,208,568		58,631	
Virginia	783,211	642,366	9,696	140,845	109
North Carolina	1,841,247	81,486,224	8,552	355,023	264
South Carolina	928,334	776,745	10,827	151,589	214
Georgia	1,369,790	1,240,538	11,815	129,252	104
Florida	1,207,941	1,056,969	16,847	150,972	119
South Atlantic	6,130,523	5,202,842		927,681	
Kentucky	583,193	556,880	3,859	26,313	27
Tennessee	569,535	531,456	3,549	38,079	33
Alabama	1,261,147	1,052,364	7,211	208,783	199
Mississippi	745,237	707,674	6,055	37,563	70
Arkansas	387,039	346,810	847	40,229	73
Louisiana	325,186	293,181	4,858	32,005	30
Oklahoma	131,364	126,017	3,528	5,347	6
Texas	584,387	490,740	7,754	93,640	29
South Central	4,587,088	4,105,122		481,959	
Montana	26,879	27,432	887	**	**
Idaho	85,250	110,620	2,345	**	**
Wyoming	11,523	11,784	490	**	**
Colorado	46,596	45,958	1,599	638	1
New Mexico	24,251	28,901	1,256	—	**
Arizona	147,887	126,123	5,207	20,759	62
Utah	22,283	21,423	681	860	3
Nevada	3,009	3,285	401	**	**
Washington	154,906	156,246	2,567	**	**
Oregon	133,537	148,425	3,583	**	**
California	1,178,219	1,085,141	21,703	93,078	18
Western	1,834,335	1,765,338		115,335	
Total U.S.	21,920,331	19,679,121	23,418	2,241,210	35

*Derived from "Commercial Fertilizers, Consumption in the U.S.," for the years 1953-54 and 1954-55, U.S. Department of Agriculture. Consists of the figures for mixtures and materials for the two halves of the calendar year 1954 minus secondary and trace element fertilizers as shown in the 1953-54 report.
†1954 Census of Agriculture, Vol. III, Part 10, Table II, adjusted for completeness: North Central States (ground phosphate rock); Alabama (basic slag); Arizona and California (natural organics). Standard error computed as indicated in State Table 18, 1954 Census of Agriculture, Vol. I.
‡Total deliveries (Col. 1) minus total farm consumption (Col. 2).
¶Indicated non-farm consumption (Col. 4) divided by the sum of the urban and the rural non-farm population (1950 Census), multiplied by 2,000 to convert to pounds.
§Census of the State Department of Agriculture.
**Farm consumption apparently exceeds total deliveries. Non-farm consumption in each of these states is thought to be at least 100 tons ranging up to as much as 1,000 tons in such states as Vermont and New Hampshire.

sales in the smaller towns is even less than indicated in these four communities, and that the small package sales in the larger cities is greater.

The analysis of existing data presents some interesting and difficult problems.

Two principal sources of information are available. The U.S. Department of Agriculture for many years has published an annual report of total fertilizer consumption by states. Farm consumption of fertilizer is given for the years 1929, 1939 and 1954 in the respective U.S. Censuses of Agriculture.

Non-farm use of fertilizer would seem simply to be the difference between total use, as reported by USDA, and farm use, as reported by the Census. The two series are not entirely comparable, however. Even when adjustments are made for comparability, certain discrepancies appear that are not entirely explainable with available knowledge. Nevertheless, as the best data available, these series were used as the basis for this part of the study.

Total consumption, as reported by USDA, is not actual consumption. These data represent shipments by manufacturers to wholesalers, retail dealers and consumers and generally speaking are recorded at the first point of delivery regardless of where the material eventually is used.

The USDA and Census reports do not in all cases cover exactly the same materials. Moreover, the USDA report is for a fiscal year beginning on July 1, whereas the Census reports are for calendar years. Fortunately, quarterly or semi-annual data also generally are given, and the quantities of all materials used separately in amounts large enough to be significant are included separately in the statistics, so corrections can be made for these differences.

The deliveries method of estimating total consumption has another drawback. In years when dealers' stocks either are being built up or depleted, manufacturers' shipments may differ significantly from actual consumers' purchases. Fortunately, consumption and inventories on the average were remarkably stable from 1953 to 1955. As a result it is believed that during 1954 (the latest year for which Census data on farm consumption are available) total shipments and total consumption were practically identical for the country as a whole and probably for many states.

In Table IV are shown by states for the calendar year 1954: total deliveries, farm consumption, and the difference which presumably represents non-farm consumption. Adjustments for comparability have been made as indicated above in the data for both total deliveries and farm consumption.

The total delivery data are believed to be complete and to involve little or no error, except possibly for some of the Western States. Farm consumption data, however, are based on a sample, and therefore, could be subject to error. About 27% of all farms in the U.S., and at least 20% in every state were included in the sample. As a result, a standard error was computed for the Census data and is included in Table IV.

For the country as a whole, it is believed that the indicated non-farm consumption is fairly accurate. When state figures are examined, however, obvious discrepancies appear.

Total consumption in any one state, as judged by reported deliveries may be either too high or too low because of shipments from or to the state after the initial delivery is reported by the manufacturer. In many states, this movement across state lines tends to balance and no adjustment, therefore, is necessary.

However, the introduction of this factor means that total deliveries differ from total consumption by varying amounts for most states, and that in some cases the difference is substantial. There is no way to make an accurate adjustment for this factor with available data, and no such adjustment is attempted in Table IV.

It is believed that in most of the Eastern States, movements across state lines have on the average tended to balance out. For most of the Western States, except California and Arizona, and for New Hampshire and Vermont, reported deliveries appear to be lower than total consumption. In fact, for 12 states, indicated total consumption, as judged by manufacturers' deliveries, is less than farm consumption as reported by the Census. This obviously is not correct and indicates that something is wrong with the statistics for these states.

This situation undoubtedly is partially explainable by shipments to retail dealers and consumers in these states after the initial delivery from the manufacturer is recorded elsewhere. Large wholesale centers such as Chicago, Dallas, Spokane, Kansas City, San Francisco and Minneapolis cover wide multiple-state areas in the West and Far West. The relative size of the discrepancy for some of these states is so great, however, that this could hardly be the full explanation. It is possible that some substantial quantities of fertilizer may be imported from Canada and Mexico by wholesalers or by large farm users, and that these imports, therefore, have not been reflected in the USDA figures for total deliveries.

It seems certain that there is at least some non-farm consumption in every state. In the case of the 12 states in question, this probably ranges from perhaps a hundred tons in states like Wyoming and Nevada up to 1,000 tons or more in Vermont and New Hampshire.

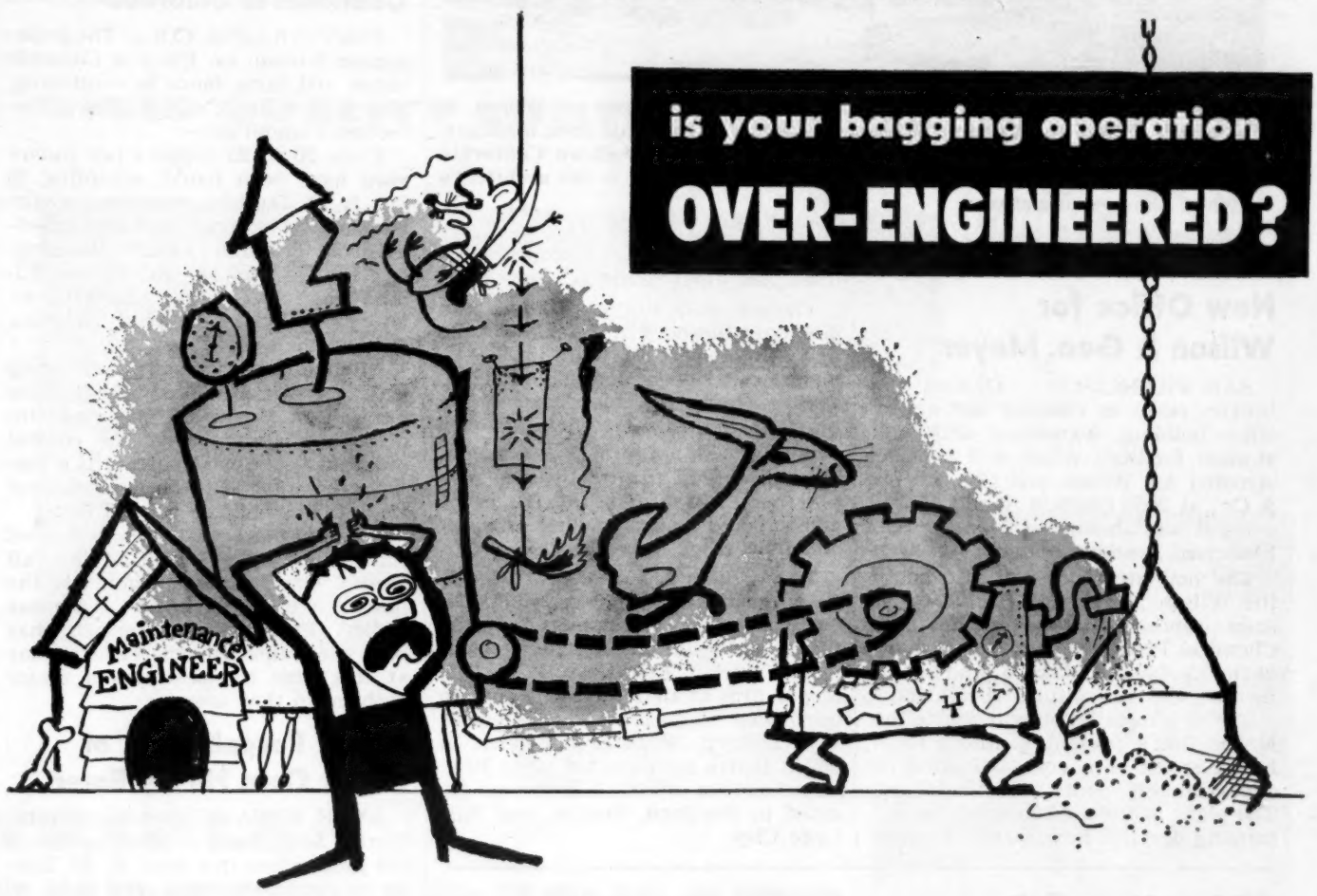
Average per-capita consumption for non-farm use probably has little meaning as such. However, it is one method of ranking the states in the order of their importance as non-farm fertilizer consumers.

When the indicated non-farm consumption is divided by the urban plus the rural non-farm population as reported by the 1950 Census, we find that the six states with indicated non-farm fertilizer consumption rates of over 100 lb. per capita all are situated in the Southeast. This is understandable. Here farm manures seldom are available. Rainfall is heavy and the growing season is long. The soils are naturally deficient in plant food. As a result, fertilizer is necessary to grow almost anything satisfactorily.

Generally, the opposite situation exists in many of the Northernmost States—particularly those in the West North Central and Pacific Northwest.

The same six Southeastern States are among the top seven in terms of total indicated non-farm consumption. The newcomer is Illinois, which ranks number five on this basis, probably because of its large urban and rural non-farm population, and also

(Continued on Page 6)



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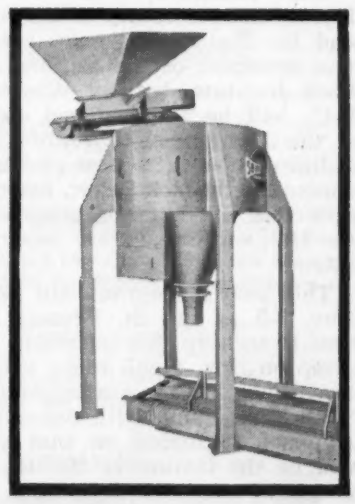

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GROUNDBREAKING—Wilson Meyer, left above, president of Wilson & Geo. Meyer & Co., and Thomas W. Harris, southern California area manager, are shown breaking ground for the construction of a new southern California home for the 107-year-old chemical distributing firm. Below is the architect's sketch of the new structure.

Ground Broken for New Office for Wilson & Geo. Meyer

SAN FRANCISCO — Ground was broken early in October for a new office building, warehouse and bulk storage facilities which will be constructed for Wilson and Geo. Meyer & Co., at 2060 Garfield Ave., Los Angeles, it was announced from the San Francisco headquarters of the firm.

The new structure will also house the Wilson Meyer Co., Pacific Coast sales representatives for Eastman Chemical Products, Inc., a subsidiary of the Eastman Kodak Co., and manufacturers of agricultural chemicals.

The new installation will double the Meyer firm's present southern California space at a cost estimated at approximately half million dollars. The plant is designed to meet the expanding demand throughout the area for Tenite plastics, agricultural chemicals, and other products.

The new bulk storage facilities will eliminate the need of outside storage and will consist of four 15,000-gal. underground tanks and one 6,000-gal. surface tank for blending certain products to customers' specifications.

A spur tank will provide for incoming and outgoing rail deliveries. Ample room will also be available for efficient and quick handling of truck and tank truck deliveries.

The William J. Moran Co., Los Angeles, consulting engineers and general contractors, are constructing the plant, and estimate it will be completed during February, 1958. The Meyer firm at that time will give up occupancy of its present quarters at 4800 District Blvd., Los Angeles, in which it has been located since 1951. Other district offices of Meyer are located in Portland, Seattle, and Salt Lake City.

CFA to Hear Talks By True D. Morse, Russell Coleman

SAN MARINO, CAL.—True D. Morse, undersecretary of agriculture, and Dr. Russell Coleman, executive vice president of the National Plant Food Institute, both of Washington, D.C., will be the featured speakers at the 34th annual convention of the California Fertilizer Assn., it has been announced by Jack Baker, association president. Six hundred persons from the U.S. and Canada are expected to attend.

This year's program will be held Nov. 3-5 at the St. Francis Hotel, San Francisco. The addresses to be given on Nov. 4 will touch upon different facets of the convention theme, "Our Partnership with Agriculture." A panel discussion on that subject will be the feature of the afternoon program.

Moderated by Dr. D. G. Aldrich, Jr., chairman, department of soils and plant nutrition, University of California, Davis and Berkeley, the panel will consist of Dr. George B. Alcorn, director of agricultural extension, University of California, Berkeley, representing official agriculture in the state; J. Earl Coke, vice president, Bank of America, San Francisco, who will speak for crop production financing agencies; John Martin, Jr., Salinas grower and shipper, and a past director of Western Growers Assn., on agricultural marketing problems; and Lowell W. Berry, president, the Best Fertilizers Co., and a director of the association, of Oakland, representing the fertilizer industry.

Annual reports will be heard from Mr. Baker, Los Angeles; M. E. McCollam, of San Jose, chairman of the association's Soil Improvement Committee; and from Sidney H. Bierly, general manager, San Marino.

The program for the ladies will feature a cocktail hour and luncheon at the New Alta Mira Hotel in Sausalito Nov. 5, sponsored by the association. In addition, there will be a ladies' golf tournament, bridge and canasta. Prizes are offered for these events, in addition to a number of door prizes to be awarded at the annual banquet. For the men, arrangements have been made for golf and bowling tournaments, for which prizes will be given.

Four directors, each to serve for three years, and the 1958 association officers will be elected at the business meeting, which will also act on the proposed budget for the year 1958. Mr. Baker reported that advance registrations for the convention are being received at the association office. Interested persons are asked to contact the general manager at 475 Huntington Drive, San Marino 9, Cal., for complete information.

FLORIDA HANDBOOK

GAINESVILLE, FLA. — "Citrus Diseases in Florida" is the title of a new handbook published by the University of Florida.

INSECT AND PLANT DISEASE NOTES

Alfalfa Aphid Travels Fast in California

SACRAMENTO—Four years after the spotted alfalfa aphid was discovered in the Imperial Valley of southern California, it reached the state's northern border.

M. V. Maxwell, farmer adviser, reported about 1,200 acres of alfalfa in the vicinity of Montague, Siskiyou County, on the Oregon boundary line, are infested.

Robert W. Harper, chief of the California Bureau of Entomology, said it was believed the aphid will pose the same threat to Oregon's alfalfa hay crop as it did in California, although the shorter summer season may restrict its period of fast development.

Grasshopper Buildup Continues in Colorado

FORT COLLINS, COL.—The grasshopper buildup on Eastern Colorado range and farm lands is continuing, according to the Colorado Insect Detection Committee.

From 20 to 25 hoppers per square yard have been found, according to Dr. L. B. Daniels, committee chairman. Counties most seriously affected include Yuma, Logan, Washington, Phillips, Lincoln, Kit Carson, Kiowa, Baca, Las Animas, Bent, Crowley, Fremont, Pueblo and El Paso, Dr. Daniels said.

Although poison baits are being used, many fall-planted wheat fields are suffering damage, the report indicated. Continuation of the control program is vitally important if a major infestation is to be avoided next year, the committee pointed out.

Other insect activity has decreased sharply with the advent of the fall season. One striking example is the tomato fruitworm in the Arkansas Valley. Practically no activity has been noted this fall, whereas last year at this time the pest was a major problem in that area.

Survey Reveals 90% of Iowa's Corn Hit by Borer

AMES, IOWA—Corn borer infestation in Iowa fields reached near-record proportions this year, H. M. Harris, state entomologist and head of the zoology and entomology department at Iowa State College, has reported.

The average corn field in the state is now 88.8% infested according, to this year's corn borer survey, just recently completed. The counts were made in fields selected at random throughout the state.

The northwest corner of the state was hardest hit with 100% of the plants inspected containing borers. In this 16-county area more than 900 borers were found per 100 plants, or more than nine borers per plant.

Mr. Harris said that counts dropped off slightly toward the southeastern counties. The lowest populations, however, were reported in an area extending eastward from Linn County in east-central Iowa.

This year's state average of 397 borers per 100 plants is the third highest population since records were started in 1947. The high mark of 802 was set in 1949. In 1954 an average of 483 borers was found per 100 plants.

Mr. Harris also noted that a majority of the borers found in the survey were second-brood borers. "This means that corn should be picked as early as possible to avoid dropped ears and stalk breakage—the second brood is usually the one which causes greatest yield losses."

Weather conditions for the second brood were "ideal this year," according to Mr. Harris. "Furthermore," he continued, "the broods tended to overlap one another, making control recommendations difficult." He also expressed concern over next year's corn borer outlook "which is potentially far worse than in 1949."

Populations throughout the state have been building up for the past three years. "Normally, better than 90% of the borers are killed by harvesting operations, winter, and spring work, but 10% of this population still makes a serious problem for next season," he said.

In 1948, for example, the year preceding the state's record high, there were 202 borers per 100 plants. In 1949 there were nearly four times that number. "Weather conditions next spring and early summer will determine, in a large part, how serious a borer problem to expect in 1958," Mr. Harris said. It was also pointed out that the U.S. Department of Agriculture estimates about a 3% loss per borer per plant.

Cotton Insects Not as Active in New Mexico

STATE COLLEGE, N.M. — Pink bollworm (Pectinophora gossypiella) damage is moderate to heavy in four fields of cotton in southern Dona Ana County. The infestation isn't as heavy this year as it was last year and it hasn't spread.

Cotton leafworms (Alabama argillacea) are still active in many fields in Dona Ana, Eddy and Chaves counties. Stained lint is common in heavily infested cotton fields.

Orchard mites (Bryobia praetiosa and Tetranychus mcdanieli) continue to build up heavy infestations in apple orchards during harvest in Rio Arriba, Santa Fe, San Juan, Lincoln, Otero, Sandoval, Bernalillo and Valencia counties.

Grasshopper infestations cover 531,800 acres of range and crop land, 59,500 acres of crop land are infested in Bernalillo, Curry, Harding, Lea, Quay, Roosevelt, San Juan, Taos and Valencia counties; 472,300 acres of range land are infested in Chaves, Colfax, Curry, Grant, Harding, Lea, Mora, Lincoln, Quay, Roosevelt, Sandoval, San Juan, Taos, and Union counties. The heaviest infestations covering the most range land are in Union, Colfax, and Harding counties.

Spotted alfalfa aphids (Therioaphis maculata) are beginning to build up in spotty infestations on seedling alfalfa in Dona Ana, Lea, and Eddy counties. Several growers are applying insecticides.—John J. Durkin.

No Soybean Nematodes Found in Illinois Survey

URBANA, ILL.—The fact that no trace of the soybean cyst nematode has been found in a survey of 63 of the 102 counties of Illinois, has led the state's agricultural department to say the state is free of this soil pest. The cyst nematode, regarded as a potentially serious threat in the U.S., was found only in the Orient up to a year ago when it was discovered in Missouri.

Witchweed Spreading in South Carolina County

CONWAY, S.C.—Witchweed infestations on Horry County farms are increasing, V. M. Johnston, county agent, reported, following detailed surveys in South Carolina areas.

Infestations have been noted on 102 farms, in five different communities, some as far as 20 miles away from the first occurrence, Mr. Johnston said. In Marlboro County, infestations were spotted on 31 farms.

Consideration is being given for a possible quarantine, he said.

F. R. MacCauley

ONTROLLER — F. R. MacCauley s been appointed controller of outhern Nitrogen Co., Inc., Savanah, Ga. Mr. MacCauley was preiously assistant treasurer and assisnt secretary and will continue to erve in these offices. Before joining outhern Nitrogen in May, 1956, Mr. acCauley was employed as plant ccounting supervisor by Rohm & aas in Houston. Prior to this, he orked for Procter & Gamble. Mr. acCauley is a graduate of Notre ame and holds a master's degree om the Harvard Graduate Business chool.

alifornia Plans uarantine Hearings

SACRAMENTO — The California epartment of Agriculture has called ublic hearings for Los Angeles and acramento on a proposed quarane regulation to prevent further read of Cooper's broomrape, a para- te of tomato plants.

The parasite was discovered in 956 attacking roots of tomato plants the Coachella Valley of Riverside ounty. Later it was found in the iland area of Imperial County.

The hearing in Los Angeles will e held Oct. 23 and in Sacramento ct. 29. The hearing officer will be llen B. Lemmon, chief of the deartment's division of plant industry.

The proposed regulation would prescribe certain soil treatments with ethyl bromide as a fumigant and ould prevent movement of tomato lants out of the proposed quarantine reas unless shipments are certified y the county agricultural commisioner as having been grown in treatd fields.

Lilly Renews Grant or Antiviral Study

MANHATTAN, KANSAS — The earch for antiviral compounds hich might help control such disases as wheat streak mosaic, barley tripe mosaic, tobacco mosaic and ucumber mosaic, will be continued the Kansas Agricultural Experient Station this year with the assistance of a $1,500 per year grant-aid from the Lilly Research Labratories of Eli Lilly and Co.

The Kansas State College scientists, led by Webster H. Sill, Jr., are eeking a biochemical which might erve as a virocide, functioning gainst viruses in much the same ay that antibiotics do against bacria.

Two of the compounds already creened by Mr. Sill and Mr. Ren hong Chiu have exhibited some antiral potential against the broad leaf iruses, but nothing yet has been ound which might work with any f the grass viruses. If in further creening the researchers find others ith antiviral possibilities, more serous studies will be undertaken with hese and related compounds.

5.6 Million Acres Treated by Aircraft in California in 1956

SACRAMENTO — Aircraft were used to treat 5,601,548 acres for pest control in 1956 in California, according to Robert Z. Rollins, chief of the Bureau of Chemistry, California Department of Agriculture. This represents an increase of almost tenfold in the past ten years, according to Mr. Rollins.

Field crops accounted for about 70% of the total including 1,686,616 acres of cotton and 1,594,297 acres of alfalfa and clovers. Aircraft also treated 855,451 acres of vetegables and 237,122 acres of range and pasture. Grapes, deciduous fruits, berries, nuts, ornamentals and other types of plantings also were treated by aircraft.

The state figures reveal that of the total, 3,940,357 acres were treated with sprays and 1,661,191 acres with dusts. Half the total acreage treated was in three counties: Kern, 1,172,086 acres; Imperial, 927,097 acres, and Fresno, 639,908 acres. This reflects the importance in these counties of cotton and alfalfa.

Mr. Rollins said agricultural pest control operators also treated 1,259,409 acres by ground equipment. Estimates are that farmers themselves treated more than 3,000,000 acres for pest control in 1956. Mr. Rollins said there are 11,000,000 acres of cropland in California.

CASH FARM INCOME

PORTLAND, ORE.—Cattle topped the livestock category, wheat headed the crops division, and pears led the fruit list on the first official breakdown of gross cash farm income in Oregon during 1956. Total cash sales of Oregon farm products in 1956 was $407,852,000 about 6 million above Oregon gross cash farm income in 1955.

Weed Control Expected to Save California Millions

BERKELEY, CAL.—Modern weed-control methods will save California citrus growers millions of dollars in the next few years, a University of California scientist predicts. One product is estimated to have saved $500,000 in production costs over the first two years of its use, according to Boysie E. Day, assistant plant physiologist at the Riverside campus of the university. In the future, it should save growers many millions of dollars.

Large scale savings are also in prospect for the 100,000 acres of California orchards that he estimates are infested with Bermuda grass. "Most of this land ultimately must be reclaimed for water conservation if for no other rearson," the Riverside weed control specialist added. "At present this would be a $12 million project. Methods now under development promise to cut this cost in half."

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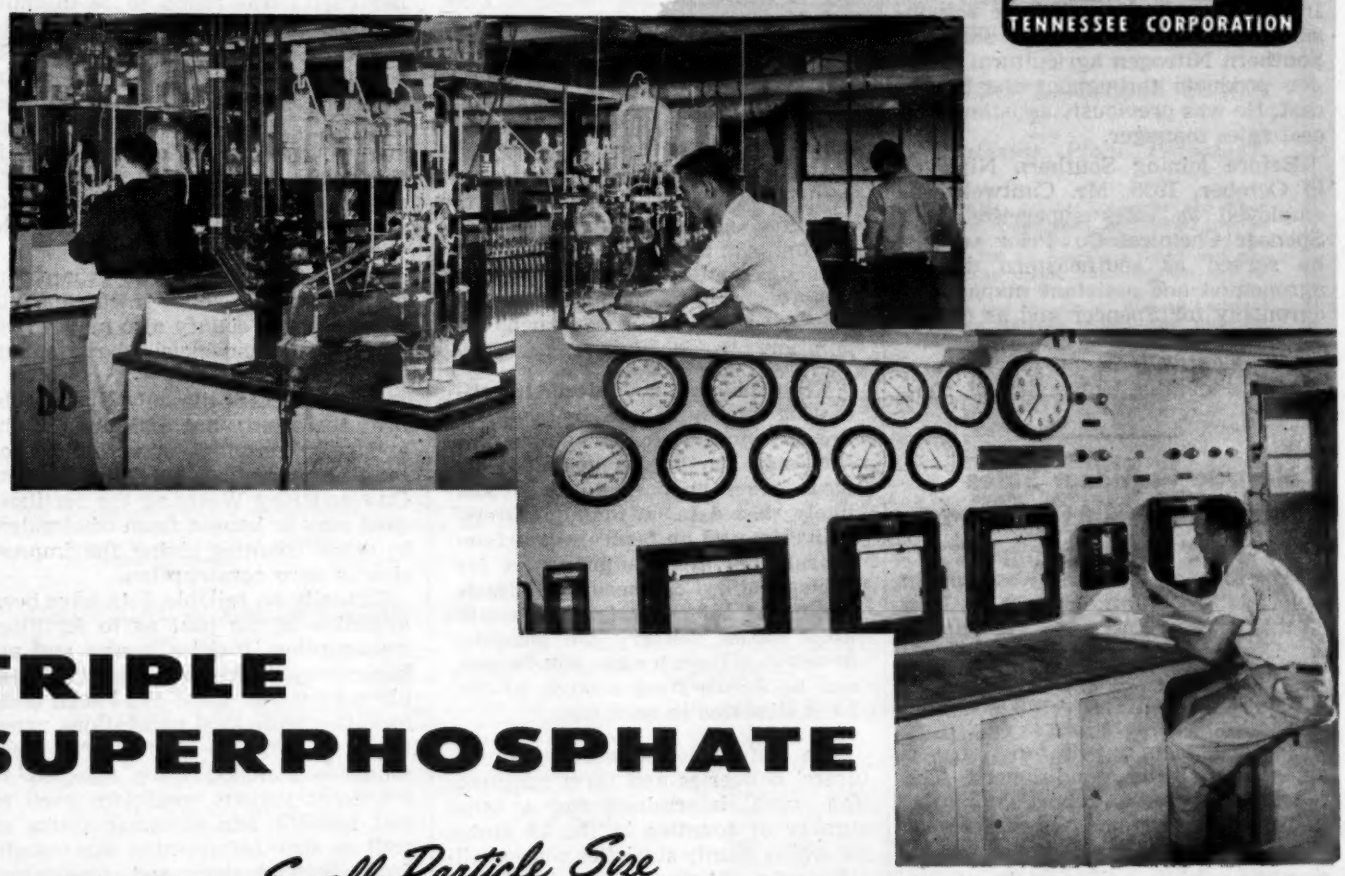

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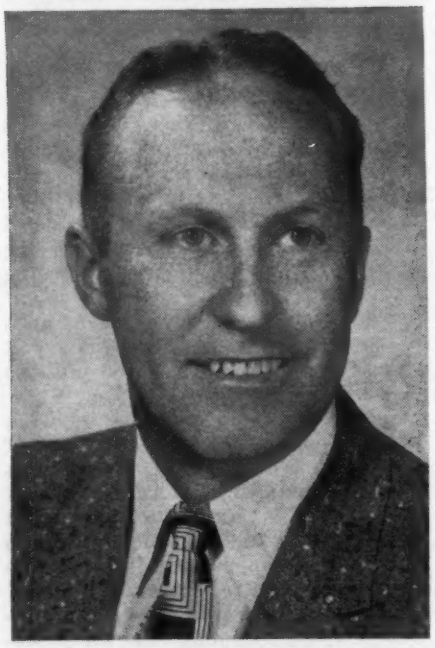


Dallas Cantwell

Dallas Cantwell Named Sales Manager Of Southern Nitrogen

SAVANNAH, GA. — Dallas Cantwell has been appointed general sales manager of Southern Nitrogen Co., Inc., Savannah. He will have responsibility for directing the sales of Southern Nitrogen agricultural nitrogen products throughout the Southeast. He was previously assistant general sales manager.

Before joining Southern Nitrogen in October, 1955, Mr. Cantwell was employed as sales supervisor with Spencer Chemical Co. Prior to this, he served as southeastern district agronomist and assistant manager of agronomy for Spencer and as county agricultural agent in Tennessee.

Mr. Cantwell is an agricultural graduate of the University of Tennessee.

Colorado Fertilizer Sales Reported at 44,617 Tons

DENVER, COLO.—A total of 44,617.42 tons of fertilizer was sold in Colorado from Jan. 1, 1957 to June 30 this year, according to the Colorado Department of Agriculture. Of the grand total, 24,282.68 tons were classified as materials, and 19,434.57 tons as mixed fertilizers. Added to this were some 900 tons of soil amendments and conditioners. The report was based on reports by manufacturers.

Of the mixtures, 21-53-0 found the greatest sale, according to the report. Some 2,693.73 tons were used. Next was 0-45-0, with a sale of 1,710.96 tons. A 10-16-8 mixture was third, with a reported sale of 1,054.64 tons.

Ammonium nitrate, ranging from 23.5% to 33.5% enjoyed the greatest sale among the materials, totaling 8,458.80 tons. Superphosphate, of 30% and over was next, with 5,062.53 tons. Sulfate of ammonia was third with 2,726.37 tons. Urea materials ran a close fourth, with a sale of 2,222.12 tons. Superphosphate of 18% to 20% strength was sold in the amount of 1,001.90 tons.

Hybrid Corn Conference Scheduled for December

CHICAGO—The 12th annual hybrid corn industry-research conference will be held at the La Salle hotel here Dec. 4-5, according to an announcement by Dr. George F. Sprague, professor of farm crops at Iowa State College, program chairman.

Subjects to be discussed at the two-day meeting include the role of experiment stations in basic research, research into use of fertilizer, including band application; control of witchweed parasites, and the effects of feeding fungicide-treated grain to livestock.

NON-FARM USE

(Continued from Page 3)

possibly because of its importance as a wholesale center.

As to inter-state movements, it is known that Oklahoma customers buy a great deal of fertilizer from Arkansas dealers, especially in Fort Smith. Large amounts also are bought by Tennessee farmers in Alabama and lesser amounts in Virginia. This is in part compensated by some movement from Tennessee dealers into Kentucky and from Memphis and Chattanooga to suburbs in adjoining states.

More fertilizer moves from North Carolina dealers into South Carolina than in the reverse direction. The Nevada fertilizer control office estimates that several hundred tons are brought into the state each year by consumers that are not accounted for in the official reports.

The New Hampshire situation may be partially explained by a considerable movement from Massachusetts dealers along the Merrimack River and from a fertilizer wholesaler in Lawrence, Mass. to New Hampshire dealers. Similarly, considerable amounts of fertilizer delivered initially to points in Canada, New York and Massachusetts are consumed in Vermont.

It is likely that some small amount of fertilizer delivered in California, Arizona and New Mexico may be finding its way into Mexico.

Total manufacturers' deliveries of fertilizer by counties are available for 15 states, as is comparable Census data on farm consumption. Thus, non-farm consumption by counties in these 15 states can be estimated on the same basis as state non-farm consumption.

The problems encountered in estimating non-farm use by counties are the same as for the states, but are even further complicated by local geography. Again, it seems likely that data on manufacturers' deliveries and on farm use are fairly reliable, after adjustments for comparability. No accurate adjustments for inter-county movements after initial delivery are possible, however, although some conclusions can be drawn from a study of the local situation in each case.

The difference between manufacturers' deliveries and farm consumption were determined for a large number of counties in the 15 states for which county statistics were available on a satisfactory basis. All of these states are in the Southeast, except Missouri, Kansas and New Mexico.

A study of these data in relation to the local situation indicates that as a general rule, the difference between manufacturers' deliveries and farm consumption is approximately the non-farm consumption in counties that contain a city of over 50,000 population, located away from the county boundaries, which is not an important wholesale center.

It was found that most counties which appear to have abnormally high non-farm consumption have wholesalers who sell to dealers in other counties. Conversely, counties which appear to have abnormally low non-farm consumption generally do not have wholesalers so that retail dealers must obtain their stocks from wholesalers outside the county.

TABLE VI. Effect of Community Size on Non-Farm Fertilizer Consumption

Population range	Number of communities in sample*	Mean per capita consumption and its standard error (lb.)
Less than 5,000	4	14 ± 4.1
5,000- 9,999	3	21 ± 3.3
10,000- 19,999	2	38 ± 8.8
20,000- 29,999	19	†108 ± 17
30,000- 34,999	21	†135 ± 22
35,000- 39,999	18	†163 ± 36
40,000- 44,999	17	†201 ± 86
45,000- 49,999	9	95 ± 33
50,000- 99,999	48	66 ± 9.0
100,000-199,999	35	64 ± 12
200,000-399,999	12	41 ± 6.3
400,000-799,999	10	32 ± 7.8
800,000 and over	4	8 ± 1.4

*Includes all counties for which separate data is available as well as cities, towns and other urban communities included in the study. While communities included range from New England to New Mexico, the majority are in the South.
†Probably somewhat too high. See text.

The location of important trading centers near county lines is another complicating factor as is the reported delivery of fertilizer to large consumers at one or more central locations which then is used at other locations in adjoining counties.

The widest variation in apparent non-farm fertilizer consumption rates per capita was found to be in counties with non-farm populations in the range of 40,000 to 45,000. Of the 17 counties studied in this category, indicated per capita rates varied from 0 to 1,170 lb. This at first seems strange until it is realized that in this population range, the widest variety of conditions can be found that affect fertilizer use. For example, there can be no city conditions in a county where the whole urban population lives in small towns and villages. Such a county also may adjoin a large city and have a large suburban population.

In other cases the only city may be near the county line and much of the apparent consumption actually used in other counties. Or, like Panama City and Key West, all the fertilizer used may be bought from wholesalers in other counties giving the impression of zero consumption.

Virtually no reliable data have been available in the past as to fertilizer consumption in cities, towns and urban communities. As a result, a sample survey was made in 14 such communities with 1950 populations ranging from 1,753 to 966,000. The communities included were selected to represent various conditions such as soil, climate, and economic status as well as size. Information was sought from both dealers and consumers. Table V summarizes this study as it relates to over-all usage in these communities.

Generally speaking, per capita rates are lowest for the very small towns and the larger cities. While small towns usually have detached houses and relatively large building lots, the number of larger users such as golf courses, city parks, public buildings, college campuses, industrial plants and memorial-type cemeteries is limited.

The opposite is true of cities of from 20,000 to 50,000 population which also generally have many homes with large lawns and fine gardens. Above 50,000, the proportion of row houses and apartment buildings increases with size and the size of the average building lot decreases. In the largest cities, the average amount of land available per capita for home lawns and gardens approaches zero.

In Washington, D.C. (for which USDA statistics are available), per capita consumption decreased from 7.1 to 5.9 lb. from 1954 to 1956. A similar situation probably is occurring in other large cities with the trend toward suburban living. The rates in the suburbs of these cities is much higher, however, and probably is increasing.

To study more carefully the effect of size of community on non-farm fertilizer consumption, all of the counties studied as well as the cities, towns and urban communities were grouped according to size as shown in Table VI and the average per capita rate was determined for each group. As might have been expected, the rates are lowest at each end of the Table and highest for the group with populations between 40,000 and 45,000.

While the shape of this curve probably is generally correct, there is reason to suspect that the averages in the population groupings between 20,000 and 45,000 may be on the high side. Communities with less than 20,000 population almost never contain a fertilizer wholesaler that is not a manufacturer.

In communities of over 100,000 population, the presence of such wholesalers has a relatively small effect in most cases. However, in communities with between 20,000 and 50,000 population, wholesale shipments into other communities may represent a significant proportion of reported manufacturers' deliveries.

TABLE V. Estimated Non-Farm Fertilizer Consumption—Selected Cities and Towns, 1956*

Community	Population†	Non-farm fertilizer consumption (tons)	Average plant food content Nitrogen (N) %	Phosphate (P_2O_5) %	Potash (K_2O) %	Fertilizer type—Farm—Mixed %	Straight materials %	Specialty‡ %	Average per capita consumption (lb.)
Athens, Ga.	28,180	800	6.7	9.5	8.5	78	12	10	57
Winchester, Va.	13,841	276	5.5	9.7	5.6	89	4	7	40
Anderson, S.C.	19,770	350	5	10	7	—	—	—	35
Atlanta, Ga.	331,314	9,900	6.4	8.8	7.2	80	8	12	30
Prince Georges Co., Md.	255,644¶	3,400	5.8	9.6	4.9	86	2	12	26
Gettysburg, Pa.	7,046	82	6.4	8.7	6.2	61	6	33	23
Franklin, Ky.	4,343	47	4.9	10.1	6.6	43	16	41	22
Enfield, N.C.	2,361	21	6.0	9.0	6.6	90	6	4	18
Dover, Del.	6,223	48	5.4	9.5	6.8	82	1	17	16
Winsted, Conn.	8,781	65	5.8	9.6	5.4	60	3	37	15
Batesville, Ind.	3,194	20	11.4	6.1	4.1	26	20	54	13
Baltimore, Md.	966,000¶	3,000	6	10	6				6.2
Washington, D.C.	859,000¶	2,540	7.2	8.2	3.8				5.9
Pennsboro, W. Va.	1,753	3	5.3	10.0	8.4				3.4

*Based on a randomized sample survey.
†1950 Census.
‡Including liquid fertilizers, bone meal, activated sewage sludge, dried animal manures, urea condensation products, processed tankage, and fertilizer recommended especially for lawns, azaleas, roses and other non-farm crops.
¶Estimated 1956 population.

"Nitro-Sul" Plant Set For Washington State

KENNEWICK, WASH.—Construction of a new chemical manufacturing plant at Hover, Wash. near here is to begin immediately, according to an announcement made by Kerley Chemical Corp., Phoenix, Ariz. The plant will produce a nitrogen-sulfur product to be marketed under the trade name of "Nitro-Sul."

Frank L. Vanlandingham, Pacific Northwest production and sales manager for the firm, says the product will be made by mixing anhydrous ammonia and raw sulfur. Its analysis will be 20% nitrogen and 45% sulfur, he said.

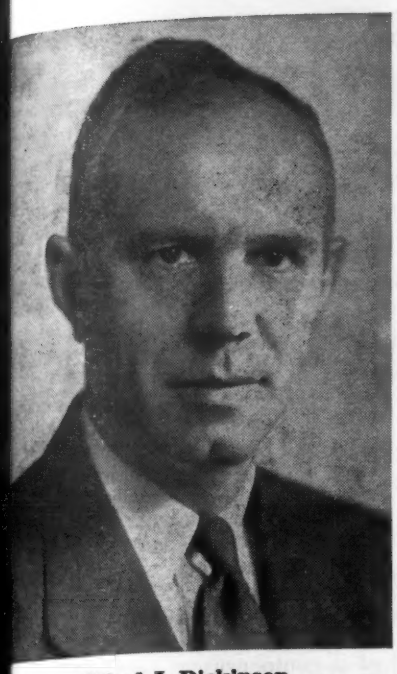
Ammonia will be supplied from producers in the area, and shipped by rail, Mr. Vanlandingham states that in addition to the plant, several storage tanks will be erected with capacities ranging from 10,000 to 30,000 gal. in which anhydrous and aqua ammonia, dry sulfur and "Nitro-Sul" concentrate will be stored. Completion of the plant is calculated to be in time to supply materials for the spring planting season.

Mr. Vanlandingham joined the Kerley firm Sept. 1, after having been associated with Phillips Petroleum Co. for the past 13 years. At the time he joined Kerley, he was division fertilizer sales representative for Phillips.

Barada & Page Erect New Building in Houston

HOUSTON—Barada & Page, Inc. of Kansas City has contructed a $250,000 office and warehouse building here. The firm distributes alkalies, acids, phosphates and other chemicals to the oil, rubber, agricultural and manufacturing industries.

Walter M. Betts, Kansas City, is president of the firm. A. S. Barada, Jr., Houston, is vice president, and Harrison Hale is general manager of the Houston operations.



Alfred J. Dickinson

Alfred J. Dickinson Joins Freeport Sulphur

NEW YORK—Alfred J. Dickinson has joined Freeport Sulphur Co. as vice president and sales manager succeeding the late Roy B. Johns, according to an announcement by Thomas R. Vaughan, vice president.

Mr. Dickinson, until he accepted the position with Freeport, was vice president of Virginia-Carolina Chemical Corp. He joined Virginia-Carolina in 1939 and became vice president in 1952. He is a graduate of the University of Richmond and of Harvard University Graduate School of Business Administration. During the war he served as an air combat intelligence officer for the Marine Corps.

Monsanto Moves Into New General Offices

ST. LOUIS — General offices of Monsanto Chemical Co. have opened for business at a new location here, culminating a program for administrative office consolidation which started more than seven years ago. The new offices are in a group of new buildings just completed on a campus-like setting at Lindbergh and Olive St. Road in St. Louis County.

The move has no connection with the operation of the three manufacturing plants which the company has in the St. Louis area, including the John F. Queeny Plant at 1700 S. 2nd St., the Carondelet Plant at 8201 Idaho St., both in St. Louis, and the William G. Krummrich Plant at Monsanto, Ill.

The new buildings permit the consolidation at one site, for the first time since 1951, of all the Monsanto executive administration, staff departments and St. Louis-based divisions. Headquarters for the company's plastics division at Springfield, Mass., and the Lion Oil Co. division at El Dorado, Ark., are not affected by the move.

Included in the move are the executive offices, the inorganic chemicals division, organic chemicals division, overseas division, research and engineering division and the domestic subsidiaries and affiliates division; the eight staff departments, including accounting, advertising, law, medical, patent, personnel relations, public relations, purchasing and traffic and treasury. St. Louis district sales offices for all the company's divisions also are at the new location.

New Hooker Plant

VANCOUVER, B.C. — Power was turned on Oct. 9 for the first time in the new $12 million chlorine-caustic soda plant of Hooker Chemicals Ltd., North Vancouver. The plant has a rated daily capacity to produce 110 tons of 50% and 73% liquid caustic soda, 100 tons of chlorine and 1,000,000 cubic feet of hydrogen.

MCA Head Cites Need for Better Public Information

NEW YORK—A call for individuals in the chemical industry to accelerate their public information activities was issued here Oct. 14 by the president of the Manufacturing Chemists' Assn., who said, "The heat is on the... chemical industry from a number of quarters and it isn't lessening any."

Gen. John E. Hull, USA (Ret.) warned that the fast moving expansion throughout the chemical field is being imperiled as a result of current popular misconceptions on the part of legislators and the public.

He said the most obvious antidote for this threat "is taking our case to the people on a year-round basis. This case can be presented best," the MCA president said, "by individuals at the community level." He described a nationwide chemical industry activity committees program that is being established to coordinate this.

The former U.S. and U.N. Far East commander was luncheon speaker at the sixth Chemical Sales Clinic sponsored by the Salesmen's Association of the American Chemical Industry. The meeting was at the Hotel Roosevelt.

Gen. Hull cited the proposed Kefauver-Patman amendment to the Robinson-Patman Act as an example of the type of action resulting from a misconception of industry's operations and its role in the national economy.

"Passage of the bill," he declared, ". . . could seriously stifle competition in all parts of the chemical industry." He also told his audience of over 400 that the bill, "if it became a law, would have a direct, negative effect on you as salesmen . . . the practical effect of it would be that your company wouldn't know whether it could legally cut price to meet competition."

Gen. Hull cited profits, wages, taxes, plant safety, competition and other areas in which he said there are misconceptions. "These misconceptions often mushroom to such an extent that they result in a general unawareness and rejection of industry problems," he added.

The salesmen were told how they can fit into the framework of the chemical industry activities committees designed to "create an atmosphere of understanding."

The CIAC program, an outgrowth of the MCA's "Chemical Progress Week" program, will be a continuing campaign at the community level according to Gen. Hull. "Its aim," he said, "will be to guide those within the industry to work with and for their communities as representatives of the industry and, at the same time, provide factual information about the significance of chemistry and the chemical industry in terms of the daily life of the individual."

The New York chemical industry activity committee is under the chairmanship of R. C. McCurdy, president, Shell Chemical Corp.

RANGELAND RESEEDED

BAKER, ORE.—Some 630 acres of rangeland burned in August's Malheur fire were reseeded recently by the Don Doyle Flying service of Baker, Ore. The firm broadcast seed from a height of only 20 ft.

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Books on Pesticides

WEEDS—Second Edition (1955)
W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with reference to chemical methods of recent discovery $10.00

CHEMICAL BUSINESS HANDBOOK
Dr. John H. Perry

1,300 double column pages, the equivalent of several average books; 700 illustrations, by 124 contributors. Market research data section is 280 pages, business mathematics 200 pages, financial and accounting 142 pages, research and development 150 pages, sales and advertising 92 pages, twenty sections in all. The book deals with chemical management problems and is useful to technical men, engineers and executives, in the chemical and allied fields. Dr. Perry is editor of the Chemical Engineers Handbook, a companion publication $17.00

INSECT PESTS OF FARM, GARDEN and ORCHARD Fifth Edition (1956)
Leonard M. Peairs and Ralph H. Davidson

A standard text for 44 years. Includes insects affecting grasses, grains, cotton, legumes, vegetables, flowers, fruits, stored products, household goods and domestic animals. Contains a new chapter on insecticide formulations, spray mixtures, application equipment, etc. Material on forty new pest species added, including drastic changes in the illustration. 661 pages $8.50

DDT and NEWER PERSISTENT INSECTICIDES
T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatability of DDT with other insecticides, fungicides and additions are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations $8.50

APPLIED ENTOMOLOGY—Fifth Edition
H. T. Fernald and Harold H. Shepard

This text since 1921 has had an outstanding record of usefulness. The Fifth Edition preserves the general organization and coverage, with changes to improve the presentation and to incorporate new knowledge. Contains chapters on anatomy, physiology and development. The economic importance and control of insects are discussed in a general way with much attention to insecticides. The classification of insects is emphasized, with examples drawn from species conspicuous for being very harmful or decidedly beneficial. Specific control measure included for injurious forms. Last chapter considers other pest animals closely related to insects. 385 pages $7.00

DISEASES OF FIELD CROPS—Second Edition (1956)
James G. Dickson, Professor Plant Pathology, University of Wisconsin

Covers the diseases of cereals, grasses, legumes and fiber plants, which are the major food, feed and fiber sources throughout the world. More than 60 diseases incited by viruses, 40 by bacteria and 300 by fungi are listed and discussed in relation to field crop plants. Identification and information basic to its control, with emphasis on the problems of crop rotation, adaptation and the use of disease resistant varieties. This revised edition includes several new diseases, new illustrations and much recent research in the field $8.50

THE GARDENER'S BUG BOOK (1956)
Dr. Cynthia Westcott

The Complete Handbook of Garden Pests and their control. Information, scientifically accurate but easy to read on 1,100 insects, mites and other animal pests that attack trees, shrubs, vines, lawns, flowers, fruits and vegetables in home gardens. Illustrations in full color. Control measures combine the latest in chemical developments with time-honored cultural measures. Helpful to all who serve the general public and to truck farmers and fruit gardeners. 579 pages, cloth bound $7.50

THE CHEMISTRY AND ACTION OF INSECTICIDES
Harold H. Shepard, Entomologist, U.S. Department of Agriculture, formerly Associate Professor of Insect Toxicology, Cornell University.

Treats the chemistry of insecticides, the history of their use, their commercial importance here and abroad, the nature of the major uses, the influence of environment on effectiveness. Materials are arranged according to their chemical relationships. Two chapters relating to organic compounds largely new as insecticides. Illustrative data in form of tables, and a convenient appendix of equivalents arranged for practical use in the field. 504 pages..... $8.00

WEED CONTROL
W. W. Robbins, A. S. Crafts, and R. N. Raynor

A textbook-manual presenting a modern view of the rapidly developing field of chemical weed control. Reports in detail the research on which most modern herbicide usage is based. Weeds, their reproduction, prevention, biological control, chemicals in weed control. Herbicides, foliage contact applications, hormone-like substances, root applications, evaluations of combinations of chemical applications. Weeds of grasslands and turf. Special weed problems, cropped and uncropped areas. Published 1952. 503 pages, 155 illustrations $8.00

INSECT, FUNGUS AND WEED CONTROL
Dr. E. R. de Ong

The information is grouped according to field of application rather than to chemical composition or nomenclature. Chapters on insecticide label, seed disinfectants, herbicides, forest insects and diseases, livestock insects, and the pests found in household and industry. Fumigation of warehouses, residual sprays and preservatives for fruits, vegetables and wood products are covered. An up-to-date guide on pest control with the needs of operators, agricultural and structural specialists carefully considered. Shippers and warehouse personnel will find the book useful..... $10.00

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FARM PAYMENTS

(Continued from page 1)

for the crop. This level might be 60 or 70% of parity for the crop for such a total quantity as might be determined to meet the needs for export and domestic requirements and a reasonable carryover. Farmers would be permitted to grow any quantity they desired in excess of this determined total requirement but for that quantity they would obtain no compensatory payment.

The problem inherent in such an arrangement for the farm chemical industry would be a check on the efficient use of plant foods and pesticide chemical materials. For example, while there would be no acreage allotments for any crop, the total requirement of a grain crop would be measured in terms of bushels of anticipated demand.

In the case of corn, calculations would be made as to the national and export bushelage plus carryover demand. That demand would be allocated to individual farms on some base—either historical or by areas as to eligibility for direct or compensatory payments in terms of bushels. Any production in excess of such a bushelage allotment would not be eligible for direct payments.

For cotton, payments would be made on the basis of the number of pounds required for over-all demand.

Tobacco would be the same. Potatoes also would reflect a pound basis determination, probably by state planting areas.

Under this projected proposal to Congress it is expected that the Republicans will take the initiative to head off the Democratic majority. The first step would be to put the proposal under the guidance of a Republican farm leader whom the Democrats in Congress would find it difficult to oppose. At the same time an effort would be made to restore the solidarity of the old Farm Bloc through the use of a bi-partisan commission.

From that commission it would be hoped or expected that the compensatory payment would be proposed as the only escape from the deepening farm surplus crisis.

Any new proposal on a compensatory payment plan is likely to include a much broader list of farm commodities. Indications of the extent of such a broader plan for commodities may be found in a recent analysis of the Brannan plan by U.S. Department of Agriculture at the request of Congress.

In that analysis USDA listed the commodities, which comprise about 85% of all farm cash marketings, as necessary if any successful venture in a compensatory program is to be achieved. Those commodities a wheat, rice, corn, oats, barley, gra sorghums, cattle, calves, hogs, shee lambs, milk, butterfat, eggs, far chickens, broilers, turkeys, peanu beans, cottonseed, cotton, wool, bu ley and flue-cured tobacco, potato and oranges.

That this proposal is probable learned from very reliable farm lea er sources here with contacts wi both the big political parties. Spoke men say that at the lowered levels parity for compensatory payment pu poses Congressional reaction will less unfavorable than it was wh Mr. Brannan took his 90% of suppo plan of this same nature to Congre in 1949. At that time Mr. Branna saw his plan as only operative for t perishable crops with emphasis cattle, swine and dairy products. T new plan, however, would cover t broader concept of major farm com modities as noted above.

The USDA report on the operatio of a compensatory payment plan f those commodities put a price tag annual costs of operation, based 90% of parity, at between 7.5 and billion dollars. Individuals here, wh see a modified plan as a probable ne program of the administration, sa that at the lower levels of price su port for those commodities the co would be drastically reduced. Ther fore the plan would have a goo chance of Congressional acceptanc even though such funds would only b available through annual Congre sional appropriations, a conditio which was not favorably received Congressional circles.

However, exponents of the compensatory payment plan say that an annual limit of disbursements for these purposes of about three billion dollars would possibly reflect a lower net cost of farm programs than the amount of money being poured into present programs.

Staff officials at USDA are highl critical of the compensatory payme at any level of price support. The fail to see how such a system can r move the present accumulation of su pluses. They applaud, however, a pr posal to establish a bi-partisan co mission to seek a solution of the far problem outside the influence of po tical considerations.

Stauffer Chemical To Enlarge Plant In Richmond, Cal.

NEW YORK—Stauffer Chemic Co. will enlarge its Richmond, Ca plant to produce 50,000 tons annual of pelletized single superphospha Roger W. Gunder, Stauffer vice pres dent for western operations, has a nounced.

The new plant will use a process d veloped by Stauffer engineers, in c operation with a Southwestern eng neering firm, and is expected to be production about March 15, 1958. T cost about $350,000, the new pla will supply single superphosphate a uniform, pelleted, dust-free form Stauffer said.

Wilson & Geo. Meyer & Co., excl sive sales agents for Stauffer Chem cal Company's three superphospha plants on the Pacific Coast, will ha dle the sale of this new product.

Mr. Gunder said that until the ne plant is in production next Marc growers will be supplied with pelle ized single superphosphate fro Stauffer's Vernon, Cal., plant whic was built in 1955.

AGRONOMIST RETIRES

BATON ROUGE—The retiremen of T. H. Milliken, associate agron mist with the Agricultural Extensio Service, has been announced by Lo isiana State University. Mr. Millike an LSU graduate, class of 1917, r cently completed 40 years of servi in the field of agricultural educatio including 37½ years with extensio

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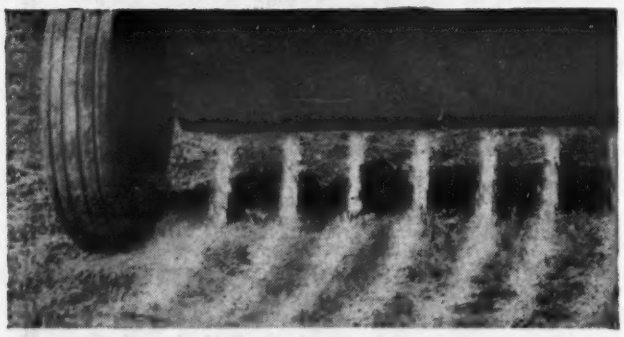

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CHICAGO, ILL.—7 South Dearborn St.
DENVER, COLO.—1375 Kearney St.
DES MOINES, IOWA—6th Floor, Hubbell Bldg.
HOUSTON, TEX.—6910 Fannin St.
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.
KANSAS CITY, MO.—500 West 39th St.
MINNEAPOLIS, MINN.—212 Sixth St. South
NEW YORK, N. Y.—80 Broadway
OMAHA, NEB.—6th Floor, WOW Building
PASADENA, CALIF.—330 Security Bldg.
RALEIGH, N. C.—401 Oberlin Rd.
SALT LAKE CITY, UTAH—68 South Main
SPOKANE, WASH.—521 E. Sprague
ST. LOUIS, MO.—4251 Lindell Blvd.
TAMPA, FLA.—3737 Neptune St.
TULSA, OKLA.—1708 Utica Square
WICHITA, KAN.—501 KFH Building

Report From West Shows

Farm Chemical Dealers Strive to Improve Customer Service

By Jess Blair
Croplife Special Writer

Since agricultural chemicals have become such an integral part of producing crops, many farmers have difficulty in keeping up with the newest developments. Newer and improved fertilizers and insecticides are continually being placed on the market. The most effective way to kill potato beetles, or cotton leafworms, or some other pest, may be superseded by an even better method by the time the farmer gets another crop started.

As a result of this fast-changing field, many farmers lack adequate information. One farmer, who is also a college graduate in agriculture, said recently that he was too busy with management problems to keep up with new products. He merely relied on the dealer from whom he bought insecticides and fertilizer.

The changing pattern of agriculture has brought an extra responsibility to the dealer. Farmers not only come to him for information and advice, but they often want someone to go back to the farm with them. They have insects in the crops; a fungus or blight of some kind seems to be attacking the plants, or maybe there's a spot in the field where crops are always stunted.

This increasing demand on the dealer's time is posing a problem in many areas. Many dealers have willingly given time for field trips, while others confine their service to free advice only.

Dozens of Dealers Give Opinions

On a recent trip through the western states, an attempt was made to find out how dealers were meeting the problem. In talking to store owners and managers, these questions were asked: "How much field service are you giving? How do you go about it, and is it paying off?"

One manager of a large California company said: "We couldn't stay in business without some experts on the staff. Our customers are too busy to keep up with all the changes, so they rely upon us to help them."

A store owner in the next town had a different idea about field service.

"In some places it has gotten out of hand," he said. "I know of one store selling fertilizer and feeds that had to back up on farm visits. Some of the firm's customers are poultrymen, and a few of these fellows had the store's employees out culling hens, spraying fly poison and even supervising the installation of minor equipment. They were good customers, so the store had a ticklish problem on its hands."

Many dealers work closely with the county agents, and they also rely upon the entomologists sent out by the manufacturer. However, these experts are spread thinly in most areas, and farmers can't always reach them. It is then they come to rely upon the man who sells the farm chemicals.

In Oregon a very successful dealer in fertilizer and insecticides found that group training eliminated many trips to individual farms.

"We try to teach farmers to solve some of their problems," he explained. "If two or three farmers come in saying insects are in their potatoes, one of the staff takes a circle through the community and makes some field checks. Then we call a group meeting at a certain farm where we identify the insects, explain the kind of insecticide needed and how to use it.

"I remember one such meeting when 22 farmers met with us. In an hour's time they knew just exactly what to do, and it saved us at least a dozen trips to separate farms."

The amount of field service a dealer can afford seems to depend upon his manner of operation. The man who derives much of his income from custom spreading of farm chemicals is usually eager to visit as many farms as possible.

In Colorado a firm that annually treats thousands of acres never passes up a request to make a field trip.

"It pays off in more business," said the manager. "Over half the time when we're called out to a farm, we leave with an order for some spraying or dusting, or fertilizer. Quite often we are given the job of applying it also. Usually on these trips we get acquainted with other farmers and pick up orders that would ordinarily be missed."

Some dealers have parlayed these field trips into a profitable sideline that eventually became a major part of the business. In New Mexico a young store owner decided to put in a small nursery, and was instantly besieged with requests to look at anemic plants, strange insects and the proper sites to plant shrubs or flowers.

"It wasn't long until I saw the opportunity of starting a spraying service," said the owner. "And since most of my time was spent in going from one home to another making recommendations and taking orders, I saw another opportunity in landscaping. Now we landscape a yard or park, plant the grass and shrubs, furnish the fertilizer and later spray the plants for insects or fungus."

This part of the business grew so fast that the dealer now turns his farm trade over to a competent employee and spends his whole time with the landscaping and service crews. His profit from this service is often greater during a three months' period than the store makes in a full year.

Various Methods of Handling Requests

Many of the small stores are not staffed for making field trips, but the owners have worked out various methods to offset it. One Utah dealer who changed over from a feed store to a combination of feed, farm chemicals and garden supplies has devised a way to save many trips to the country.

Pointing to the wall of the store, he said: "See all those hand-painted signs there over the cash register?"

There were some large posters attractively lettered, and each one listed the name of an insect, the type of plant it attacked and the kind and amount of insecticide required to kill it. Each insect was applicable to that particular period of the growing season.

"That's not all," he continued. "When the time comes for some insect to start working, say tomato worms, I go out and collect a half dozen and put them in a jar. Then when a lady comes in and says there are some big ugly worms devouring her tomato plants, I show her my worms. She identifies them as the same kind found on her place. Then I explain the chart; she buys the insecticides and maybe a sprayer and goes on her way. This is much better than driving five miles out to her house, and it saves me an hour's time.

"By this method, we have cut our field trips more than half. We do, however, strive to give as much information as ever, and if a field trip is necessary we make it."

For the small family-sized store, field trips may not be advisable. Another dealer in Utah who owns such a store said: "I usually drive out to the country two or three times a week just to learn what is going on, but I avoid as many requests as possible. I've become a good friend of the county agent and can often refer problems to him.

"I know we lose a few sales, but if I left the store every time some customer asked me to, I'd be forced to add another employee. In a store this size, I don't believe it's worth it."

Throughout the West there is a widespread custom of making deliveries to farms within a few miles of town. Many stores have regular routes, with each driver covering the same area month after month. Many of these drivers have become so proficient that they can often diagnose the farmer's problems and give on-the-spot help.

One owner gives his drivers regular training in plant and animal diseases and farm chemicals. He mentioned one employee of five years' standing, a high school graduate, who had a good all-around knowledge of what every farmer was doing. He can give emergency treatment to animals, identify any local insect and recommend the type of poison needed.

These drivers, if well-trained, also relay information to the owner, carry back answers to the farmers on the next trip, and are some of the most valuable employees of the firm.

One thing upon which every dealer agreed was that the selling of farm chemicals is becoming a complicated business. Farmers are entering into the chemical age of agriculture, and must have help in management problems. The successful dealer must provide the answers in some way or another, either by making field trips, by conferences in his office, or by referring the question to some authority outside the store.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

A Redwood City, Cal., retailer, H. E. Holmquist, has put into successful operation more merchandising ideas than many dealers have ever heard or read about. Store size isn't important, it's the idea-application that counts, Mr. Holmquist feels.

Although Mr. Holmquist's store has many departments, he departmentalizes only in two ways: According to type and according to brand. For example, in a 1,500 sq. ft. triangle near the rear doors there is a garden supply and equipment department. Within the department, the brands are grouped separately.

Here are some of Mr. Holmquist's concepts which can be applied for use in any retail operation, no matter how large or small it is:

(1) Don't be afraid to sacrifice a high-profit department to make room for a section that will bring more traffic and sales. Profit will take care of itself. And unit profit is secondary to fast turnover.

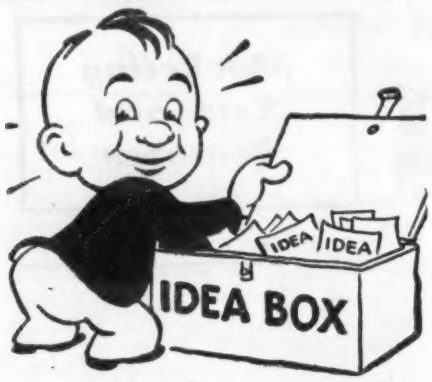
(2) Don't bottleneck a busy store with a single entrance-exitway. An extra doorway, carved out of a wall, or replacing a window, means plus traffic.

(3) Always be prepared to give informed, personalized s e r v i c e. You aren't running a food store. Lots of lines just can't sell themselves: they have to be sold with personal selling.

(4) Keep seasonal items near entrances to lure traffic off of the street, and to boost impulse sales. Change seasonal displays often to keep the same customers coming back for more.

(5) The bigger the store, the more need there is to keep related items and departments touching each other. Don't lose tie-in and step-up sales by having related lines out of contact with each other.

(6) Tailor specialized merchandise selections and selling hours to the needs of the community. Set up a fast system of ordering special request items from wholesalers, if they aren't stocked regularly. A big business in sales from suppliers' catalogs can be done if order and delivery systems are kept sharp.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6640—Urea Ammoniating Solutions

WILMINGTON, DEL. — A new booklet on urea ammoniating solutions, including detailed unloading and handling instructions, has been issued by the Du Pont Polychemicals Department, manufacturer of "Uramon" ammonia liquors for the fertilizer industry. A chart in the booklet lists the advantages of urea nitrogen as a fertilizer for all crops. Other tables offer information on the characteristics of Du Pont's urea ammoniating solutions. In addition, special graphs report the pound-per-square inch (p. s. i.) pressures generated by the ammoniating solutions at various temperatures, and the temperature rise produced when these solutions are added to fertilizer mixtures. Unloading and handling instructions include schematic drawings of a tank car, and its various valves and connections. A copy of the booklet may be obtained without charge by checking No. 6640 on the coupon and mailing it to Croplife.

No. 6641—Calculator

A new type of calculator has been designed by the Phosphates and Nitrogen Division of the American Cyanamid Co. as an aid in determining quantities of phosphatic materials

to be added when formulating various grades of mixed fertilizers. The calculator can be obtained by fertilizer manufacturers who check No. 6641 on the coupon and mail it to Croplife.

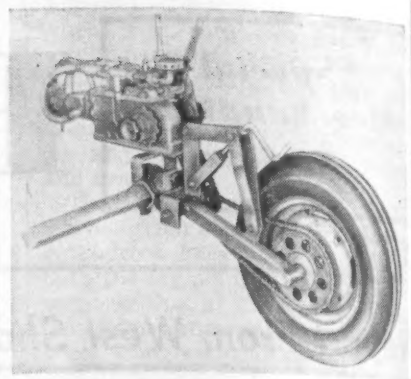
No. 6644—Liquid Fertilizer Equipment

General Metals, Inc., has published a new condensed catalog on its line of equipment for nitrogen solutions and complete liquid fertilizers. The company makes a line which includes such items as storage tanks and field applicators. The catalog gives brief descriptions of most all items in the line. Tanks of aluminum, steel and stainless steel are made in sizes ranging from 30 gal. to 22,000 gal. of both pressure and non-pressure types. Two wheel trailer applicators are made complete with trailer, tank, booms and pump. Other products described in the catalog are tractor applicators, a 3-point hitch applicator with 100-gal. tank and metering pumps. Secure the catalog by checking No. 6644 on the coupon and mailing it to Croplife. Please print name and address.

No. 5822—Dust Collector

A special, extra storage capacity dust collector, "Dustkop model 520-D," is the latest addition to the Aget Manufacturing Co.'s Dustkop line. Ten inches higher than the standard model 520, it has identical air handling characteristics and base

dimensions, but a dust storage bin that is over twice as large. The company recommends it for use in any shop operation where dust volume is unusually large. The base is 18 by 23 in, height 34 in. For detailed information check No. 5822 on the coupon and mail it to this publication.



be mounted either to the rear or in front of the square bar and is quickly interchangeable from one tractor to another, it is claimed. The wheel is equipped with Timken bearings and roller chain sprockets. Dempster also markets Liquijector liquid fertilizer applicators and pumps for anhydrous ammonia or solutions. Secure details by checking No. 6642 on the coupon and mailing it to Croplife.

No. 6638—Dust Collector

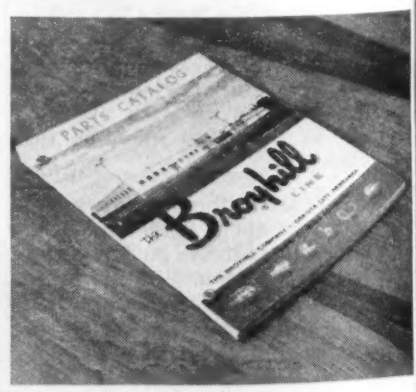
Literature concerning the use of the "Wheelabrator Dustube" dust collectors has been published by the Wheelabrator Corp. Some of the typical installations of the collectors outlined in the literature are: Controlling dust from manual unloading of product dryers; salvage material being lost at pulverizing and weighing stations and through the atmosphere; and to collect dust which creates a hazard to health, housekeeping and equipment maintenance. Secure details by checking No. 6638 on the coupon and mailing it to Croplife.

No. 5737—Grain Sanitation

A free grain sanitation service is described by the Douglas Chemical Co. in a new 14-page catalog. The catalog lists and describes the firm's line of products and also describes the service, which consists essentially of four parts: (1) inspection, (2) detection, (3) evaluation and report, and (4) recommendation. A copy of the catalog will be sent without charge. Check No. 5737 on the coupon and mail it to this publication.

No. 6636—Parts Catalog

A new 134-page parts catalog listing 1,306 parts has been printed by the Broyhill Co. Fully illustrated, the catalog has a complete parts breakdown and prices on sprayer and fertilizer replacement parts and accessories for all makes of equipment. The catalog states that the company "maintains one of the largest parts



inventories in the country and can provide fast efficient service from a centrally located source." The catalog is free to companies requesting it by checking No. 6636 on the coupon and sending it to Croplife.

No. 5789—Vibratory Feeders

The Eriez Manufacturing Co. announces the production of a new line of Hi-Vi electro-permanent magnetic vibratory feeders which are said to have greater output and move materials faster than units of com-

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6642—Ground Wheel Drive

A drive wheel unit for operating anhydrous ammonia and liquid solutions metering pumps during fertilizer application has been announced by the Dempster Mill Manufacturing Co. The unit, which can be attached by a single clamp to either a 2-in. or 2¼-in. tool bar, eliminates adapting pump brackets and drive mechanism to control the liquid fertilizer application from the tractor. The unit can

Send me information on the items marked:

☐ No. 5737—Sanitation	☐ No. 6636—Parts Catalog
☐ No. 5786—Bag Tagger	☐ No. 6637—Vacuum Cleaner
☐ No. 5789—Feeders	☐ No. 6638—Dust Collector
☐ No. 5817—Sewing Machine	☐ No. 6639—TEPP Film
☐ No. 5818—Bag Packer	☐ No. 6640—Urea
☐ No. 5822—Dust Collector	☐ No. 6641—Calculator
☐ No. 5823—Speed Reducer	☐ No. 6642—Drive
☐ No. 6635—Pneumatic Pump	☐ No. 6643 Supplement
(PLEASE PRINT OR TYPE)	☐ No. 6644—Equipment

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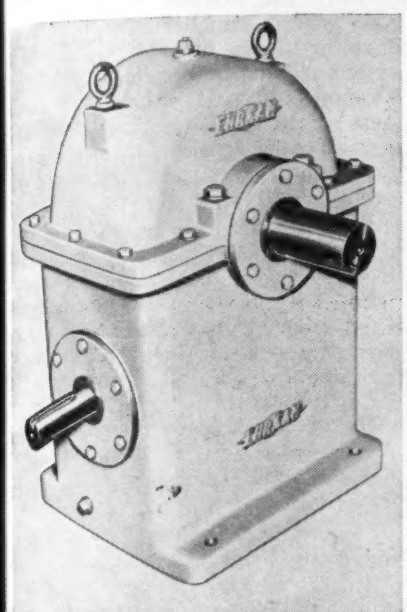
parable size. The drive element is completely enclosed. The feeder operates at 3,600 CPM directly off an AC line. An Alnico V lifetime magnet is part of the magnetic rectification system. Action is two-way, push-pull vibration. The company states that all types of materials, "dry, hot, abrasive, lumpy—may be conveyed, agitated, blended, cooled, dried or mixed" in the feeders. Check No. 5789 on the coupon and mail it to secure details.

No. 5823—Speed Reducers

The J. B. Ehrsam & Sons Mfg. Co. has announced complete details of its improved line of speed reducers. The line, known as the Ehrsam style W, incorporates a number of improvements over previous designs, officials said. They are: easier-running bearings, sturdy micrometal housings, and heavy-duty worms and worm gears. The speed reducer is available in nine standard models or sizes, numbered 3W to 15W. (Model numbers indicate center distance between worm shaft



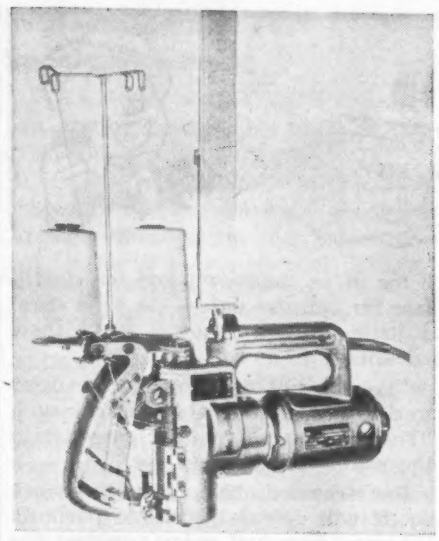
and gear shaft. In model 3W, the distance is 3 in.) All models are available with a wide range of ratios. Weights of these standard models range from 125 lb. for model 3W to 2,950 lb. for model 15W. Complete literature on the line is available. Check No. 5823 on the coupon and mail it to this publication.

No. 6639—TEPP Film

The significance of insecticide formulations incorporating tetraethyl pyrophosphate, commonly referred to as "TEPP" and being produced by many well known insecticide manufacturers, is portrayed in a short motion picture film produced by Eastman Chemical Products, Inc., subsidiary of the Eastman Kodak Co. The company's announcement states: "Considerable attention was given TEPP last year when the new federal controls went into effect regulating the use of toxic chemicals on food crops through the administration of the Miller Act. While extremely toxic when initially applied, TEPP possesses the unique property of decomposing into a harmless residue within 48 hours after application. This feature makes it particularly valuable in protecting crops virtually up to harvest time when the use of other insecticides would be unsafe owing to their longer residual effects." The film was originally produced in 1956, and subsequently withdrawn for revisions. The new version shows how the formulations combat insect pests along with approved methods of application. To secure details about securing the film check No. 6639 on the coupon and mail it to Croplife.

No. 5817—Electric Sewing Machine

The Burrows Equipment Co. has announced details of the Union special portable electric sewing machine



for which it has been named distributor. The class 2,100 lightweight bag closing machine weighs 9½ lb. and may be mounted on a pedestal or suspended and is operated by a handle switch or foot pedal control. Cotton, burlap, jute, multiwall and tar laminated paper may be utilized. It operates at 1,200 to 1,700 stitches per minute and uses a two-thread stitch. For details check No. 5817 on the coupon and mail it to this publication.

No. 6643—Liquid Feed Supplement

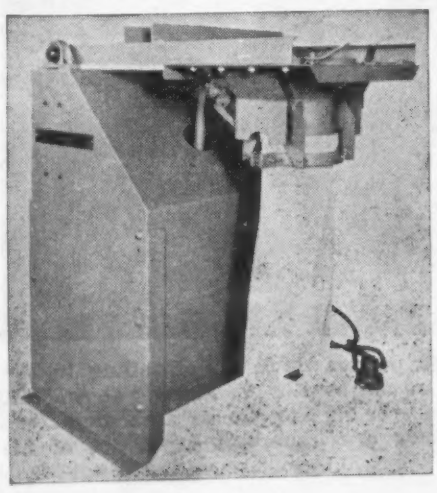
U.S. Industrial Chemicals Co., division of National Distillers & Chemical Corp., has announced a new liquid feed supplement for cattle and sheep which the firm believes will be of interest to liquid fertilizer manufacturers and distributors. The product, "Morea," is a liquid mixture containing urea, ethanol, phosphoric acid, essential trace minerals and molasses. U.S.I. said it will sell a concentrated liquid Morea premix to manufacturers who will blend the concentrate with molasses. The firm is currently appointing manufacturers who will mix and distribute the final product to farmers. The company stated that it believes liquid fertilizer manufacturers may have facilities for formulation and distribution of the product. For more details check No. 6643 on the coupon and mail it to this publication.

No. 6637—Vacuum Cleaner

The Hild Floor Machine Co. has introduced a new 15-gal. vacuum cleaner with a special intake that can be used with 1½-, 2- and 3-in. hoses, for light general vacuuming through heavy duty vacuuming. The motor can be detached for use as a portable blower, sprayer or "Strap-Bak-Vacuum." For complete information check No. 6637 on the coupon and mail it to Croplife.

No. 5818—Bag Packer

A bag packer—which bounces as it packs—is claimed to reduce labor and handling time while speeding up operations to 12 100-lb. bags a minute, announces the Richardson Scale Co. The G-73 impacker is used for packing burlap, cotton and jute bags. It gets its name from its vertical jouncing action, which jounces or impacts material into a bag held in place by clamps. The unit operates without noise or vibration to provide smaller, more compact, packages, according to company officials. Materials which can be packed include meals, mashes, hulls, beet pulps, molasses feeds and many others. For more complete details check No. 5818 on the coupon and mail it to this publication.



No. 6635—Pneumatic Pump

A pump, trade named Pneuma Pump, for chemicals, oil and water, has been announced by Pneuma Pump of America, Ltd. The unit consists of a compressor, motor and a distributor mounted on a base and is connected to the pump body by metal, rubber or plastic piping to the distributor. The unit is said to be able to pump sludges, liquids carrying solids or corrosive or abrasive material and fluid carrying gases, and is adaptable to chemical plant use. Secure details by checking No. 6635 on the coupon and mailing it to Croplife.

No. 5786—Bag Tagger-Coder

Information concerning the bag tagger-coder furnished by the Mill Engineering Co. will be sent without charge to those interested. The coder attachment now available will apply a code to the tag as it is automatically injected into the sewing machine. The code can be changed in less than one minute by use of a special quick change feature, according to the company. "Considerable other information can be printed," the announcement states. The identification of pellets and crumbles can also be made. The inking roll is protected from dust and an air motor is used to eliminate electrical hazards. Check No. 5786 on the coupon and mail it to secure details.

California Association Makes Grant for Bean Fertilization Studies

SAN MARINO, CAL.—The California Fertilizer Assn. reports that arrangements have been concluded to assure an intensive three-year fertilizer research program by the University of California on the several varieties of beans produced in the state. Research will go forward on the use of foliar analysis for diagnosing the nutrient status of the several varieties of beans under varying soil, water and climatic conditions.

The comprehensive program will be undertaken by the university's department of soils and plant nutrition, under the direct supervision of Dr. Albert Ulrich, plant physiologist in the experiment station. The association's Soil Improvement Committee is providing $9,000 from its grant-in-aid funds over the three-year period in order to finance this important program. These funds will support the activities of a research assistant to Dr. Ulrich.

Dr. Ulrich has devoted several years to the study of sugar beet plant nutritional requirements. In that field he made some significant findings with reference to fertilizer use which have aided materially in the commercial production of bigger crops of higher sugar content beets per acre.

The association reports that intensive work of this nature on California's important bean crop is most timely, very little fertilizer research work having been done with beans to date. It is felt that authenticated data which may be developed over the three-year period should go far in eliminating nutritional problems which confront many bean growers. Reports will be made as information is developed, according to the association.

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Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

As Oscar Schoenfeld approached the Schoenfeld & McGillicuddy Farm Supply Store early that morning, he suddenly stopped, his mouth agape and his eyes rolling.

"Ach, du Lieber, what is this?" he exclaimed, as his eyes rested on a mound of cornstalks, some with roots attached piled in the center of the parking lot about 4 ft. high.

"I'll bet it's those kits in this town!" Oscar cried angrily. "Their parents never watch them. They leave them run aroundt and never watch them. Somebody should tell those people something—they should handle their kits, make them go to bed early." Then a new light crept into his eyes. "Wait a minute, I had better telephone somebody."

Quickly he went to the door, unlocked it and went inside. He hung up his seven-year-old sailor hat, opened a few windows to let in some fresh air and then sat down at the telephone.

Nora McGillicuddy answered. She said, "Oh. Pat is just getting up now. I'll call him to the phone."

In a few seconds Pat's sleepy voice answered, and Oscar burst forth into a bitter tirade about those cornstalks piled in the parking yard like a garbage heap.

"I'll have the men load them up and throw them in the town dump as soon as they come in," Oscar exploded.

"Wait a minute!" Pat protested. "Don't do that. I want them for a sales stunt. I went to a lot of work to get those cornstalks and roots. Oscar! Oscar!"

But Oscar had hung up. "Sales stunt!" he stormed. "Himmel, such foolishness." He looked at the Seth Thomas clock on the wall. It was 7:02.

"Where is everybody this morning," he shouted. "Those fellows are gettin' later every morning. Just like McGillicuddy". Then he spotted Red Corcoran coming forward with lunch pail in hand.

"Get out the light truck and load that stuff and take it to the town dump!" he ordered. "I don't want that garbage in our parking lot."

Red Corcoran stood looking at the pile of rubbish and scratched his head. "Who the heck is nuts enough to dump cornstalks like that here?" he asked. "It ain't Halloween for a long time yet."

"It was that crazy Pat!" Oscar cried, angrily. "He wants it for some sales stunt, but I won't have it. Ach, hurry now and haul it away, before customers will see it."

Red shrugged his shoulders. "Okay, if you want to have it out with Pat. I only work here and take orders, whether I like it or not."

He got out the light truck, backed it to the parking lot and stood with pitchfork looking at the pile. Oscar meantime rocked back and forth on his heels in righteous indignation, his arms folded. Just then Pat McGillicuddy came driving up. He screeched to a stop and hurried out.

"Don't load that stuff!" he cried. "I want to use it."

"Keep your crazy sales ideas in the newspaper ads, not in the parking lot," growled Oscar. "Ach, this looks terrible."

"No, it doesn't. Not if you know what it means," Pat protested. "It will help us sell fertilizer."

Now it was Oscar's turn to gasp. "Sell fertilizer! That garbage?"

"Sure," Pat said. "We are advocating to farmers that fertilizer applied in the fall to crop residues and then plowed down will speed up the decomposition of the organic matter, build better soil structure and make more certain the proper feeding of the crops planted next spring, aren't we?"

"Ach, what has that to do with this?"

Pat hitched up his pants. "Well, this display will drive the idea home to farmers who come to our store. I plan to rope in this display, put up some signs explaining it, dump one bag of fertilizer over the top for emphasis and then tack up some empty sacks of fertilizer on a piece of plywood nearby so the idea of fertilizer, fertilizer, fertilizer really hits the farmer."

"You, you are going to dump a bag of good fertilizer over that—that junk," Oscar asked, horror-stricken at such waste.

"Sure, why not? It only costs us a couple of dollars, and it will make the display more effective. It will be the real stuff."

"Only a few dollars!" Oscar cried, critically. "That's what you always say, 'only a few dollars.' You throw away a few dollars here and a few dollars there and the first thing you know we are in the hole. Have you no sense?"

"I have enough to know we have to keep on stirring the imagination of farmers to get them to buy," Pat came back. "They aren't going to come in on their own and buy fertilizer for fall use unless we prod them a little, remind them it is to their advantage to do so."

"You do not need to use fertilizer to dump on that display," Oscar said. "There is an old pail of sawdust in the warehouse you can use."

Pat frowned. "No, sawdust won't do. It will defeat the whole purpose. Whoever heard of using sawdust for fertilizer? We need the real stuff."

"You can't do it," Oscar said firmly. "I'm a partner, too, and I say 'no.' I am going to put my foot down. You are wasting too much money all the time around here."

The two men exchanged steely glances, and Red Corcoran who had stood around with poised pitchfork, looked uneasy.

"All right," Pat said. "I'll pay for it myself. One bag of fertilizer won't break me. But when we sell the first order off that display I'll pay myself back, and don't try to stop me, either."

Oscar turned and went into the salesroom and sat down at his desk. Tillie, the bookkeeper, was not due at work until 8.

"Ach, I hope he don't sell a bag," Oscar said fervently, almost like a prayer. "One of these days Croplife will have an ad about some dealer who wants to sell his business cheap—maybe 50% less than it's worth. Then—"

Farm Chemicals Form Core of Idaho Farm Store's Business

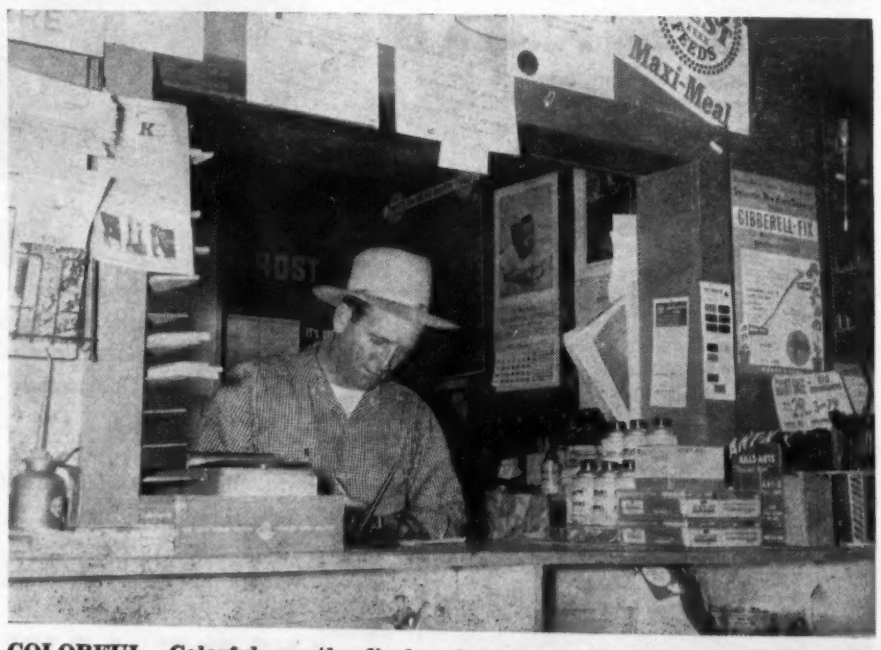
By JESS BLAIR
Croplife Special Writer

The name "farm store" has a rather wide application but at the Martin Farm Store in Homedale, Idaho, owner Roy E. Martin actually sells everything a farmer or rancher needs, from fertilizer to livestock remedies and fencing material. If there is anything a rural customer wants that is not in stock, he may be sure it will be kept on hand in the future, he says.

"I spent quite a lot of time figuring what to keep in stock," Mr. Martin said, "and finally ended up by handling everything a farmer needs. When they learned that anything they want can be bought at the store, at least three fourths of them in my trade area began trading with me."

His main business is feeds, fertilizers and other farm chemicals, with the chemicals racking up most of the sales during the growing season. Fertilizer is big business here in the valley of the Snake River, where farms are small and farmers must shoot for the highest yields possible in order to stay solvent.

Mr. Martin says nitrogen and phosphorus are the two biggest sellers, both in liquid and dry forms. He also sells a limited quantity of other elements, both in the bulk and in small packages.



COLORFUL—Colorful, neatly displayed posters do a lot of selling in the Martin Farm Store, Homedale, Idaho, owned by Roy E. Martin, above. Mr. but fertilizers and other farm chemicals are important keystones of his business.

Herbicides and insecticides are also much in demand during the cropping season. As labor becomes scarce, farmers turn more to chemical weed killers. Insecticides are almost as necessary as water in making a crop, because the bugs and worms show no signs of changing their eating habits. Since there are so many different kinds of crops grown here, the farm chemical dealer must stock various kinds of insecticides in preparation for the infestations.

"I am not a trained entomologist," said Mr. Martin, "but I've sure done a lot of hard studying to make up for it. I work closely with the entomologists and county agricultural agent, and read everything I can. Now I'm gaining at least some practical knowledge of the products I sell and can usually made accurate recommendations."

Mr. Martin had never had any business experience until two years ago when he sold his ranch and bought a controlling interest in the store. He had been a rancher near this little farming village of 1,800 people, which is located within a mile or so of the Oregon border. He decided that business might be more steady than trying to raise grass-fed cattle in an area where the rainfall was so uncertain.

It is a decision he has not regretted, although much of the profits has been put back into the business. He not only has an attractive, modern store but also owns a large warehouse. Having this storage has enabled him to sell fertilizer in bulk form to customers in a wide area. He is a fertilizer distributor for one of the large sugar beet companies which furnishes fertilizer to its customers.

"I've found that instead of fighting competition you can often work with it," he said. "I had the storage and facilities here for handling large quantities of fertilizer, so I made a deal with this company. It makes us both money. I get paid for handling it, while they save the expense of building a warehouse and keeping an extra employee or two on the payroll."

Mr. Martin thinks his knowledge of the community and its people may have helped in building the business. Yet he points out that few people will trade with you, not even your personal friends, unless they are satisfied with the way you do business. For that reason, he tries to give every customer the same courteous treatment and fair dealing.

One thing that often reduces the volume of business in the valley is the cold weather that comes early and stays late. Many dealers make their profit during the growing season and sort of hibernate in the winter.

Mr. Martin has a good feed business that lasts the year around, and he has worked hard in building up a trade in livestock remedies and farm supplies. Poultry supplies and medication also go on every month of the year, and this helps take the slack out of the cold, dull months.

Another thing he practices is always to stay busy. This last year he put his hobby of mechanical tinkering to good use. He started working on radios during his spare time, and soon had more than he could do.

"Anything you can do to bring people to the store will help business," he said. "Several people who brought broken radios to me are now buying other things."

He has several ideas about running a business that seem to pay off. One is that people like to trade at a clean, neat place. They also like colorful posters and pictures and well-arranged displays. Mr. Martin has carried this idea so far that one entering the store might think a profes-

sional decorator had had a hand in its arrangement.

There are posters, advertisements, pictures and eye-catching displays everywhere. One can stand in the middle of the room and locate almost any item he needs. This arrangement cuts down on the amount of clerical help needed.

"I've got a lot of merchandise here as you can see," Mr. Martin said, in conclusion. "A store can get too big and try to handle everything like one of the giant department stores in a city. I decided to concentrate on the farm trade, to build a complete, one-stop service for the farmer and rancher.

"So far this seems to be paying off. Of course, when we started using small packaged fertilizers, insecticides and seeds, the town people began trading here also. And even though we are not specializing in pleasing town customers, their money is just as useful and welcome as anyone else's."

Washington Soil Test Specialist Named

PULLMAN, WASH.—Washington's soil testing program is back in full gear with the appointment of Dr. A. R. Halvorson as extension soil testing specialist and associate soil scientist. Announcement of Dr. Halvorson's appointment to succeed Lowell Nelson, recently resigned, was made by Dr. L. L. Madsen, director of the Washington State College Institute of Agricultural Sciences.

Dr. Halvorson, 36, comes to the college from Purdue University where he has been extension agronomist for the past three years. Before that he was engaged in soil research for five years at the Klamath branch experiment station for Oregon State College.

The soil testing service has been operating for the past five years, processing about five thousand samples a year from Washington farmers. Part of the reason for the high volume is the result of cooperation from the Pacific Northwest Plant Food Assn., says Dr. B. R. Bertramson, chairman of the college agronomy department.

Hop Disease Study Planned in Idaho

MOSCOW, IDAHO — Future welfare and security of one of Idaho's specialty crops, hops, may hinge on results of a research project recently announced by the University of Idaho agricultural experiment station.

"Every acre of hops represents a minimum capital investment of $3,500 —and Idaho has well over 2,000 such acres," says Dr. R. D. Ensign, associate director of the experiment station, in announcing the project. This industry, concentrated in the southwestern corner of the state, is threatened by disease.

Center of the hop research, instituted at the request of the Idaho hop growers commission, will be the Parma branch station. Leader of the project will be a plant pathologist, working under the supervision of Dr. A. M. Finley, head of that department at the university. A man for this special research work is being sought.

Hop growers recently requested the university conduct research on diseases, insect control, fertilization, irrigation and development of better cultural practices. Because of losses due to diseases the past several years that will be the first target.

To assist in inauguration of the new work, the hop commission has made a grant of $4,000 for the first year. Because of the emergency nature of the problem, special research funds appropriated the university by the last legislature also will aid in the work.

"Idaho's hop growing industry has enjoyed more than a decade of growth and prosperity and there is every indication that the Boise valley may become the major hop-producing area of the U.S., if we can solve the disease problems and maintain past production standards," says Dr. Ensign.

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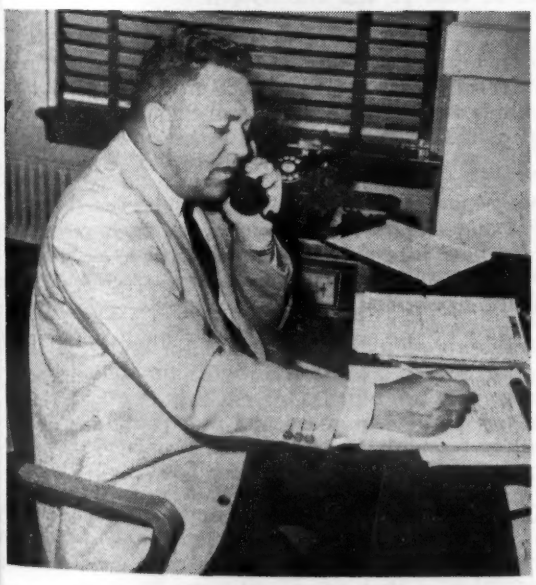
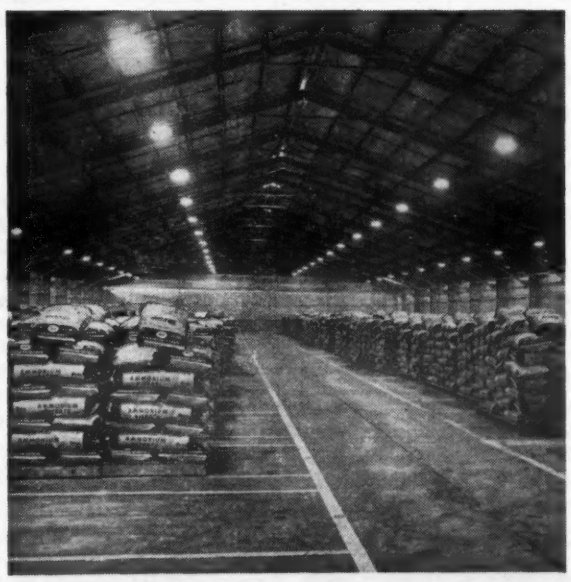
SAME-DAY SHIPMENT – It's your choice when you order Brea Brand Prilled Ammonium Nitrate: by rail or by truck, you get same-day shipment, prompt delivery even during the peak season.



YOU KNOW WHEN AND HOW IT'S COMING–Mike Butler of our traffic and distribution department makes sure your order is processed immediately. With Brea Brand you know when your shipment is coming, how it's coming, and the car number – ahead of shipment.



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Fast-acting...long-lasting.
Packaged in 80-lb. polyethylene-lined bags.

Fertilizer Helps Cut Time to Produce Beef Animal

HAYDEN, COL.—A 1,000-lb. beef animal can be raised on straight grass forage in 17 months, about half the time it normally takes.

That's what more than 150 ranchers heard at the Colorado State University mountain meadow field day at the Farrington Carpenter ranch near Hayden. During the program, scientists from the Colorado Agricultural Experiment Station and U.S. Department of Agriculture outlined new techniques in production of better beef.

"Through efforts of the Mountain Meadow Research Corp., composed of ranchers, it has been possible for us to compile data which ranchers may use to produce a 1,000-lb. beef animal in about 510 days," Forrest Willhite, associate agronomist, said.

On average mountain meadows, hay production is about one ton per acre with a crude protein content of 8%. Research shows that good water control, increased soil fertility and close management of harvest will result in hay yields of almost six tons per acre with a crude protein content of 13%.

When water control is introduced and better grasses and legumes are established, Mr. Willhite said, beef production is 358 lb. per acre. Then nitrogen fertilizer can be added to boost production to 627 lb. per acre.

When all the suggested skills and practices are combined and applied to a high-quality animal, the result is a 1,000-lb. animal in 17 months on 8½ tons of forage, he said.

"Many ranchers report a feed requirement of 12 to 13 tons over a period of 33 months to produce an animal of this size," Mr. Willhite said. "Figuring hay at $15 a ton, the suggested methods would provide a $60 feed bill saving."

Dick Jones, president of the Northwest Colorado Mountain Meadow Research Corp., said these experiments point out better methods of water control, grass management, fertilization and breed improvement. The result is more efficient beef production, he added.

Farm Management Course Offered in California

BERKELEY, CAL.—Farming is becoming big business and modern farmers must learn how to be businessmen. This is the philosophy behind a new curriculum in farm management being offered for the first time this fall by the University of California.

The program, under the direction of Dr. Roy J. Smith, is aimed not only at making better businessmen out of farmers but at providing better trained men for the many urban but agriculturally related businesses.

"A successful farmer today must know much more than the production end of farming," Dr. Smith points out. "He must have a good science background—the chemistry of fertilizers and plant-soil relationships, for example. He must also know accounting, business law, and marketing techniques."

Recent surveys indicate that in California alone an immediate need exists for 8,000 persons in agriculturally related businesses and industries, Dr. Smith reports. These include sales and management opportunities in the agricultural chemical industry, in agricultural marketing and in agricultural journalism. Training in these fields is also provided by the broad new curriculum.

California School Gets Cash Donations

BERKELEY, CAL.—Six cash donations totaling almost $11,750 swelled the funds for chemical research on the campuses of the University of California during August, according to a report of the division of agricultural sciences.

The two largest for $3,000 each were made by Rohm & Haas Co., to support a study on plant diseases, and by Union Carbide Chemicals Co., for studies on the mechanism of action of insecticides.

Close behind was a gift for $2,750 from the Pacific Vegetable Oil Corp., for research on soybean varieties including control of the red spider. Fifteen hundred dollars was given by the Upjohn Co. for research to evaluate insecticidal properties of selected organic compounds; and the California Avocado Society gave $1,000 for root rot research on avocado. The sixth gift was made by the A. E. Staley Manufacturing Co. in the amount of $500 for cooperative research program on the use of protein bait sprays for the control of the walnut husk fly.

Farm Supply Sales

SAN FRANCISCO—Sales of farm supplies in California, including agricultural chemicals, during the second quarter of 1957 amounted to $78,739,000, according to the California State Board of Equalization. Farm implement dealers handled some $47,803,000 worth of business during the three month period, April 1 to June 30, a drop of almost 14% from the corresponding period in 1956, and farm and garden supply stores did $30,926,000 worth of business, increasing more than 4%.

JOINS RED DOT

WASHINGTON—Charles E. Cunningham, a staff member of the department of agronomy, University of Maine, has joined Red Dot Foods, Inc., Madison, Wis. He will work on varietal testing, maturity studies and the effects of fertilizers on potatoes, under the direction of Frederick H. Stevenson, research director.

EMPLOYEES RETIRE—Four employees of the Smith-Douglass Norfolk, Va. plant have retired under provisions of the company's pension plan. Each had long service with the company. Left to right are, William B. Evans, Hirman B. Waters, Bud Vaughan, and Edward S. White. W. Farley Powers, company secretary, presented their first retirement checks.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Talks by a banker, an educator, a fertilizer technologist and representatives from two other associations were featured at the eighth annual convention of the Pacific Northwest Plant Food Assn. in October. Some 250 fertilizer industry men were on hand at the meeting which was held at the Challenger Inn, Sun Valley, Idaho.

The California Ammonia Co. broke ground for its new 100-ton-a-day anhydrous ammonia plant, Oct. 12. The plant will cost about $4.8 million and construction is expected to be completed in October, 1958.

Three more states, Arkansas, Kentucky, and Mississippi, were added to the list of quarantined states because of the presence of the soybean cyst nematode.

The Shell Chemical Corp. nematode workship at St. Louis, brought out the fact that nematodes cause "many millions of dollars" loss to crops each year. Some 200 agriculturalists heard a panel of USDA and university scientists discuss control of these soil pests in the one-day meeting.

Irrigated croplands need a high rate of fertilization to get optimum returns from the added investment, the USDA stated. "Before a farmer invests in supplemental irrigation, he should be willing and able to use high rates of fertilizer," the department said.

The Beltwide Cotton Mechanization Conference held at Shreveport, La., was told that cotton growers should pay more attention to the amount and type of fertilizer they use. George E. Smith, University of Missouri soils expert, said that except for the cost of the fertilizer, it costs litlte more to bring a two-bale crop to harvest than one which produces only 800 lb. of lint.

Merck & Co. announced a reduced price on its product "Gibrel", a giberellin product. The price went from $10 a gram to $4 a gram. Improvements in the manufacturing process and increased demand were given as reasons for the price change.

G. D. Baerman was promoted to manager of the insecticide products department by Olin Mathieson Chemical Corp. He was formerly manager of field sales in the same department.

Ezra Taft Benson, secretary of agriculture, is prepared to go before Congress next January to ask for an end of corn acreage allotment controls and for a reduction in the level of price supports for corn and the other basic crops—wheat, cotton, rice, peanuts and tobacco. It is expected that Mr. Benson's basis for the proposal will be that corn acreage controls have demonstrated their ineffectiveness and should be ended. To a lesser degree he feels the same is true of other crops.

The Tennessee Valley Authority reports that it produced about 266,000 tons of nitrogen and phosphate fertilizers during the 1957 fiscal year.

Treatment of crops and farm land with agricultural chemicals, especially by air, will probably increase rapidly in the next few years, continuing a trend that began at the end of World War II, the U.S. Department of Agriculture said in a special statement.

Sales and services rendered by aerial applicators topped $90 million in 1956, the National Aviation Trades Assn. reported recently. The applicators stated that they needed a number of additional potent chemical products to do a more complete job, and called on the industry to continue its efforts to provide such materials.

A ten year progress report on the battle against tsetse fly in Uganda, Africa, indicated that the pest has been beaten back so that only 700 square miles are now infested, as compared to some 8,200 square miles a decade ago. Use of insecticides along river banks, plus cultural improvements, have been prime factors in the program.

Dr. Willard H. Garman was appointed regional director for the National Plant Food Institute in the northeastern states. He will make his headquarters at the Institute's offices in Washington, D.C. Dr. Garman has been chief agronomist for the Institute for about two years and his appointment to the new post was the first of four to be made by the NPFI in connection with its expanded educational program.

Diamond Black Leaf Co. operations were integrated with the business interests of Diamond Alkali Co., Cleveland. Loren P. Scoville, general manager of Diamond's chlorinated products division, said the consolidation would provide better service to customers of both farm and home products.

The Stepan Chemical Co., Chicago, acquired Ninol Laboratories, Inc., Chicago in a $2 million deal. Ninol will operate as a division of Stepan Chemical Co.

Work has started on a statistically designed chemical control research project sponsored by the National Plant Food Institute. The primary purpose is to determine whether current fertilizer sampling and analytical procedures are adequate.

American Cyanamid Co. established regional offices in Chicago, Dallas, Los Angeles, and New York City for the sales management of all Farm and Home Division products. This division produces and markets a full line of products for "virtually every aspect of the agricultural industry," according to Burton F. Bowman, division director of marketing.

Jack V. Vernon, president of the Niagara Chemical Division of the Food Machinery & Chemical Corp., Middleport, N.Y., was elected president of the National Agricultural Chemicals Assn. at its annual convention at Spring Lake, N.J. He succeeds Fred W. Hatch, manager of the Agricultural Chemicals Division of Shell Chemical Corp., New York. The new vice president of NAC is Charles H. Sommer, Monsanto Chemical Co., St. Louis. Lea S. Hitchner continues as the executive secretary. Some 500 persons attended the meeting.

FARM SERVICE DATA

Extension Station Reports

Alfalfa is one of the most impor- nt plants in Idaho, but it's nothing t a weed with a bad reputation en it shows up in a potato field.

Richard Ohms, extension potato pecialist for the University of daho, says the mere fact that the lfalfa competes with potatoes for un, moisture and plant food is not e bad thing about it. But alfalfa the potato field is a source of alico potato virus. Insects take the irus from the alfalfa to the pota- oes.

Result is that the entire field soon s the virus. And if it happens to be e necrotic strain of said virus, the ner of the field is due for a re- ced yield of potatoes in the fall and lowered grade at marketing time. alico causes necrosis or flecking in- de the tuber.

Alfalfa is fine in the alfalfa field, t it's a good idea for farmers to ve it a dose of 2,4-D before they ow it if they intend putting it to tatoes following the alfalfa, Mr. hms said.

★

Fertilizers can be effectively ap- lied through sprinkler systems, it as been determined by three re- earchers after three years of testing nd demonstration in San Mateo ounty, California.

L. J. Booher, University of Califor- ia extension irrigationist, and R. H. ciaroni and Bryan C. Sandlin, farm dvisors, have drawn the following onclusions from the studies:

Water soluble fertilizers can be ef- iciently injected into sprinkler sys- ems by several methods.

Sprinkler ferti-irrigation is easily ccomplished and in many cases may ave considerable labor costs over iedressing or broadcast applica- ions.

Water soluble fertilizers apparent- y do not corrode sprinkler systems rovided the solution does not re- ain in the system for prolonged eriods without rinsing.

Continual feeding offers a possi- ility for improved crop production. Farmers should use it wisely and with ssistance from their farm advisors.

The researchers said that there are bout 6,000 acres of cropland irri- ated with portable sprinklers in San Mateo County. These lands, with an nnual return of more than $5 mil- ion, are planted mainly to vegetables, lowers and pastures.

★

Corn more than seven feet high rew this year on Colorado land hich could barely support pasture rass four years ago.

Grand Junction area farmers and thers attending the Colorado Agri- ultural Experiment Station field day aw what can be accomplished with eclaimed land. In addition to the orn, they inspected plots of sugar eets, alfalfa and barley, all thriving n land which once had excessive con- entrations of salt and sodium.

The secret of success, according to Dr. Minoru Amemiya, associate gronomist with the Colorado Experi- ent Station and Agricultural Re- earch Service, U.S. Department of Agriculture, is primarily due to a owered water table and controlled pplication of commercial fertilizer.

★

Nitrogen applied to small grain in he right amounts this fall and winter will help produce top yields without causing the grain to lodge.

While no accurate test is available for predicting nitrogen needs on Arizona soils, the soil type, amount of organic matter and cropping history of a field will aid the grower in estimating how much to apply, says Lyman R. Amburgey, extension soils specialist for the University of Arizona.

★

Although Omar wheat is susceptible to a newly developed race of smut that showed up this year, it is still the best wheat for those areas where smut is a problem, according to the University of Idaho.

"Smut in Omar fields appeared when we thought we were safe from it," says J. M. Raeder, plant pathologist at the university's college of agriculture, "but it's hard to find. Smut in Omar will probably increase in the next few years, but it will be one of our least smutty wheats for some time. That time will be considerably longer if all farmers will treat all seed wheat with a 40% formulation of hexachlorobenzene before sowing it. We cannot overemphasize the importance of seed treatment."

Mr. Raeder points out that wheat over the Northwest was slightly less smutty this year than last. Figures from a survey by the Pacific Northwest Crop Improvement Assn. show that most of the samples that graded smutty showed less than 1% infestation.

Fewer samples went over that figure than in past years. In some areas, however, smut in fields of Elmar, Elgin, Fortyfold, and Triplet varieties ran very high.

Wheat yields over the entire Northwest were above last year's, Mr. Raeder says. Most areas showed an increase of 8 to 10 bu. per acre over the 1946-1955 average. In the Craigmont-Grangeville area, however, the yield was below normal because of the late, wet spring.

Sulfur Output

WASHINGTON — The domestic sulfur industry produced 439,513 long tons of native sulfur and 44,867 tons of recovered sulfur (of a purity of 97% or greater) during June, according to reports of producers to the Bureau of Mines, U.S. Department of the Interior. Producers' stocks of native sulfur decreased slightly from the previous month and at the end of June totaled 4,086,614 tons.

CONTROL PROGRAM

ROCKY FORD, CAL.—An extensive program has been started in the Arkansas Valley to control the tomato fruit worm. Four years ago the pest caused almost $25,000 worth of damage in the valley.

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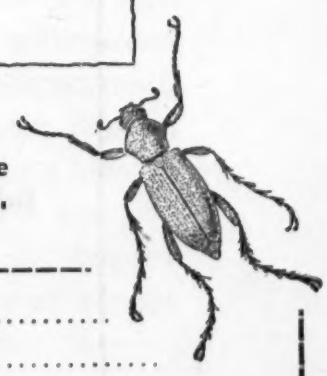

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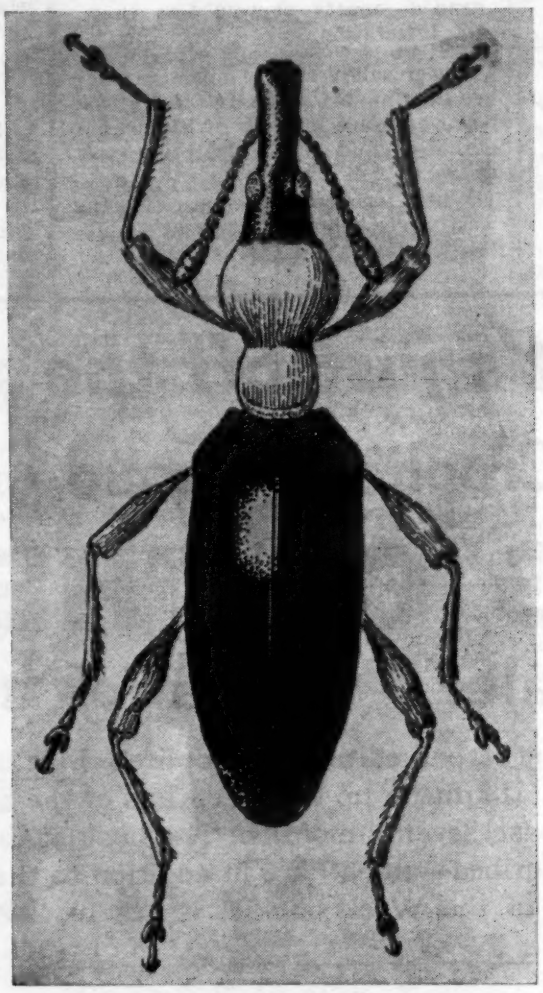

Sweet Potato Weevil

How to Identify

The adult insect (shown here) is about a quarter-inch in length, and is distinguished by its slender, shiny body and easily-noted snout. The bug's colors are also characteristic. The head is bluish-black, while the legs and middle portion of the insect are red in color. In the grub stage, the pest is white and about a third of an inch in length. It is legless in this stage, and usually fat appearing.

Habits of the Weevil

The sweetpotato weevil lays its eggs in small holes that it makes in the stems of sweet potato plants or directly in the potatoes themselves. In about a week, the eggs hatch into small, white grubs which feed and grow in the vines or in the potatoes. In two or three weeks, the grub reaches its full growth. While it is still in the stem or potato, the grub changes into the pupa, or resting stage in which it remains for a week or more before the weevil emerges by eating its way out.

Damage Done by Insect

Sweetpotato weevils do tremendous damage to plants, often rendering the potato unfit for any kind of feed, human or animal. Grubs do damage by feeding within the stems, roots and potatoes. Small holes in groups on the surface of the potatoes are either feeding marks or holes made by females in laying their eggs. Roots and tubers of sweet potato plants may be honeycombed by numerous grubs which leave tunnels filled with excrement. When weevily potatoes are cut open, the grub-made tunnels can be seen, often with grubs or pupae still in them. Sweetpotatoes thus infested have a bitter taste and are totally unfit for food.

Control of Sweetpotato Weevil

Cultural practices rate high in control of this pest, but a number of pesticidal products are available to do the job. (Experiment Stations and county agents in the half-dozen or more southern states in which the weevil occurs, can provide accurate information on materials to use, amounts, and methods of application.) If infestation is light, rotation of crops will deprive the pest of its food supply for a year which is said to eradicate it. Sweetpotatoes should not be grown anywhere within an area extending from ½ mile to 1 mile from any known infestation. Destruction of plant residues on an infested field is another recommended practice. Federal and state quarantines prohibit the transfer of sweetpotatoes from an infested area.

Illustration of Sweet Potato Weevil furnished Croplife through courtesy of the U.S. Department of Agriculture.

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UNITED STATES STEEL

BANKER'S VIEWPOINT . . .

Farm Money Loaners Require Good Soil Fertility Plans

By Elroy Nelson*
Vice President and Economist
First Security Corporation
Salt Lake City, Utah

Few programs in agriculture have more significance to the bank than does the program of soil fertility. Admittedly, this statement needs some defense. Certainly, any one of the government programs: the soil bank, reclamation, and irigation, price problems and trends in utilization of crops and livestock, soil conservation, might be listed as the most important single phases depending on the individual's viewpoint. Admittedly, all of these programs are of vital significance to the farmers, to agriculture as a group, to wholesale and retail trade in the marketing centers. But, viewed from the standpoint of productivity per unit of labor as applied to this year's production or to economic growth itself, soil fertility, as a problem, must be considered as the most important single factor.

In terms of individual farms, adding plant food to the soil means correcting the mistakes of the past such as mining the soil or removing without replacing plant nutrients. Actually, for a given year, the addition of the proper amount of the plant nutrients can correspond to the better farm practices such as selecting better type feeders for the feed lot or the purchase of certified seed. These are significant "security" for borrowing from the bank.

Commercial fertilizer from minerals is relatively new in the Intermountain and Northwest regions. And, the progress in the past 10 years, both from the standpoint of production and utilization, has had greater growth than in the entire previous 100 years' history. And, yet, we are aware there is much more to be learned about plant food: when, where, and how much plant food must be added under a given set of conditions. We are also aware that there is a great deal more knowledge accumulated than is now used, knowledge from the laboratory, from the experiment stations, from the individual farmers' records.

From time to time various "guestimates" have been made as to the amount of plant food we should be adding to the soil in order to maintain fertility. Except in a few and rather rare instances, we are not as yet adding the proper quantities because we do not know with the desired accuracy the amount needed.

Ten years ago use of mineral fertilizer in New Jersey was greater than the total used in the eight mountain states. In that same year North Carolina consumed more fertilizer than the entire 11 western states. That pattern has changed significantly. California, for example, now consumes almost as much fertilizer as does North Carolina and is third among the states following North Carolina and Florida.

Ten years ago, Idaho used 5 47 lb. N.P.K. to the plowable acre, Washington 6.63 lb., Oregon 8.10 lb., and Utah 6.02 lb. In 1956 approximate poundage per plowable acre had increased to 9 lb. in Utah, 10 in Idaho, 14 in Washington and 16 in Oregon. We're probably approaching one fifth of the needs on plowable land. This does not include the irrigated pasture, the tremendous acreage of dry range, or the forested grazing lands most of which have yet to be considered in fertilizer programs.

* From address delivered at Pacific Northwest Plant Food Assn. meeting, Sun Valley, Idaho, Oct. 4, 1957.

The bank is increasingly aware of a number of changing patterns in agriculture. The obvious ones are the increase in size of farms and the efficiency of those farms to the increase in prices of farm land, due principally to increased size and also the increase in farm debt, the demand and needs for credit.

Today's farm, using Idaho as an example, has a greater investment per owner and/or worker than does industry. In 1957 the average investment or value of land and buildings per farm in Idaho is just over $33,000. This is 25% above the national average. In Utah, Washington and Oregon on a statewide basis, investment per farm is just slightly lower. In 1945, according to the agriculture census, the average investment per farm in Idaho was $12,000; in 1950 some $22,000. Today the 55,000 tractors, 40,000 trucks, 47,000 cars on Idaho farms, plus other equipment from grain harvesters to hay balers, fertilizer spreaders and milking machines average some $14,000 per farm. This means total average investment in land, buildings and equipment is in excess of $47,000 per farm.

A comparison with industry of investment per worker (including operator) on the farm is somewhat more difficult. One half of Idaho's farm operators also work off the farm at least some time in the year. A considerable part of farm labor is family and seasonal, and reached a peak above 90,000 in the harvest season. But, estimates of full-time operators and proportionate full-time employees can be made. The approximate investment in land, buildings and equipment per employee (and operator) on Idaho's farms is just above $26,000 or some $4,000 more than in industry in the nation; some $3,000 higher than industry in Idaho, higher than the investment per worker in steel, slightly lower than investment in chemicals.

Investments High

A major factor in the increased application of capital includes the programs associated directly and indirectly with soil conservation: the land leveling, lining of canals, drainage, re-seeding, sprinkler irrigation and adding humus to the soil. All of these are significant factors. In the next eight years we expect to see additional significant application of capital to farming. And the funds for this will come from individual farmer's savings, from financial institutions—certainly including commercial banks — and from various other sources. Production per man hour on the farm is expected to increase even more.

The increased size of farms, the requirements for commercial credit are one reason for special interest of the banks in agriculture finance. It is perhaps also significant that in the states in this region, Washington, Oregon, Idaho, and Utah, plus California, Arizona and Nevada, we have statewide branch banking systems. The banks are sufficiently large, except in very rare instances, to finance the agricultural needs of the farmer, the distributor, and the producer of commercial fertilizer. The unit banks in many of the agriculture areas also seem to be doing a very good job in financing the current expense needs of agriculture including fertilizer.

Although changes in banking are much less dramatic than are those in chemical fields, certainly in fertilizer, banks today must at least have a working knowledge of all changes in economic patterns within their area or regions. Or, at least those banks must have some individual who knows sources of information and how to use such sources. While the local manager is expected to be rather well informed on his own territory, he is becoming increasingly dependent on agricultural specialists who serve given territories. These men, in turn, have close relationships to extension services, agricultural economics, and experiment stations of the colleges. They maintain rather excellent libraries including the college bulletins from their own and surrounding states, as well as the professional and trade publications from the Plant Food Institute, Agricultural Chemicals, Anhydrous Ammonia Institute, Potash Institute, and others.

The policy of the banks throughout the region is to accept recommendations from the colleges as correct and to finance the farmer for whatever he may need assuming he is an acceptable credit risk. Actually, fertilizer loans are considered the best type of loans made by the banks to agriculture. They are less risky than almost all other loans. They are usually accompanied by a workable farm budget. Such loans are made for the purpose of increasing quality, even more than quantity of production. Moreover, they build up the fertility, increase the value of the farm and, in many instances, the chattel used as security.

Loan Terms Vary

Fundamentally, commercial bank credit is extended for short periods of time. Such credit is extended to the wholesaler, retailer, or farmer for his current operations. The loan will be repaid during the year; at some time in the year, the farmer will be out of current debt. At least he will have paid off that particular loan. This, of course, is a generalization and simply basic. There are term loans extending beyond one year for various farm improvements. There are equipment loans requiring 2½ years credit or more. But, the most important base, excepting only mortgage loans, is the loan repaid in the year.

The bank expects payment for fertilizer loans to be made at the time the crop is harvested or marketed. This is usually a loan made in early spring (possibly arranged for the previous fall) with repayment of the loan expected at the time of harvest and/or sale of the crop, usually within some six months.

For potatoes, where most are sold after the first of the year, the loan would be made for more than six months. There are, however, two distinct changes to this. One is the result of application of fertilizer in the fall, the second is the knowledge that some fertilizer has considerable residual effect beyond the first year's crop and payment terms are, at times, extended. This applies especially to areas, new or run down, where application of fertilizer is extensive and intensive; cover crops are significant the first year.

Considerabl quantities of credit are supplied to the farmer, to the distributor, and in fact, to the producer. Almost another category is the credit supplied producing companies which contract certain crops from farmers. These companies supply the fertilizer, finance it at the bank by assignment or guarantee, and deduct the cost of fertilizer before paying the producer for his contract crops. These are usually ten-twelve-month loans. The oldest of these types is associated primarily with the sugar beet companies. But, this is extended somewhat into potatoes, even to vegetables, to a limited extent to fruit. Loans are usually secured by a lien on the crop or some other form of chattel. Some are unsecured, only rarely is the demand note used for such loans in this region.

Perhaps the most significant item that has developed over the past few years on farm loans is the farm budget. This is a budget prepared by the individual farmer (with the bank's help) outlining the year's or seasonal needs. For example, he may need to borrow $35,000 during the year. But, in what months does he require the credit, what are the sources of repayment?

Budget Loans

To illustrate for a given farm: The total credit of $35,000 is not needed at one time; the maximum amount of credit is $18,000. In preparing the farm budget fertilizer loans are listed in a rather prominent place. And significantly, such items as fertilizer are listed in the budget not only for those who grow crops, but to an increasing extent for livestock producers for use on hay, irrigated pasture, and to a limited extent, to date, on dry land pasture.

The farmer through the distributor of fertilizer or the county agent, is generally well informed as to the recommended practices applying to his area and to his crops. In some instances, however, the bank's agriculture representatives supply the farmer with recommendations from the colleges. In many instances they have suggested an increase in the use of fertilizer, a shift in the type or time of application. As reported by our agriculture men, as a typical example, in a relatively large farm loan there appears an item of $4,000 out of a total loan of $30,000. This fertilizer loan is even listed by crops—so much, at least in dollars—for sugar beets, for grain, for potatoes, for hay with portions of the loan repaid from those particular crop marketings.

Numerous field visits are made to those who have loans as well as to those other farmers who are not borrowers. Reports are prepared as to the method the farmer is following, the predetermined practices including the application of fertilizer. This is all part of that loan history. This farm budget is a matter of permanent record followed year after year and the previous year's history can be of great value in amending or improving farm operations including fertilizer use and application—correcting mistakes of the past, capitalizing on knowledge gained.

We are aware, today, that one of the big developments in fertilizer is to increase the quality of the product, not just the quantity. This also means to increase the net income or the productivity per man hour or unit cost. We are well aware that many products are marketed on the basis of quality, the protein content of wheat, or of alfalfa. We are aware of the excellent job done by some feed lots, certainly those associated closely with sugar factories, by the flour millers, by the vegetable processors, potato groups, and fruit producer associations in increasing quality, protein content, color, seed, etc. These farm organizations are interested in quality.

Fertilizer Use Expands

For example, the report from a feedlot is that protein content of hay of a given area is lower or decreasing with indications that something should be done, mostly fertilizer. This is significant to the bank in the producing area. The banks are as vitally interested in this as are the farmers themselves.

There remains a great deal more work to be done, more use of knowledge already gained and the addition of more knowledge. In the past 10 years application of fertilizer in Idaho, as measured by some general statistics, shows the over-all average has increased from 5 lb. to the plowable acre to slightly over 11 lb.; in Utah from 5 to 9; in Washington from 10 to 14; and in Oregon from 11 to 16. These are general, statewide averages.

The best guestimate is that within

ese states we are now using about e fifth the fertilizer we could well using. Many of the older areas ed more plant food. We have just gun the application on irrigated asture, have hardly touched the dry nge, and certainly haven't even oked at forested land, both for tim- r and grazing. All of these offer allenges to banks, to the producers, stributors, and users of plant food.

We have only begun in the use of il tests to determine relative quan- ties of plant foods and specific needs. anks in many areas have established xcellent programs in cooperation ith the agriculture colleges to pro- de soil tests. The banks supply the il testing equipment, the colleges e chemical (and physical) analyses. great deal more can be done in is direction and the state bank as- ociations, at least the agriculture ommittees of the associations of all ur of these states, are considering upplying such services or of extend- g them.

Banks feel this is just a beginning trying to learn and use techniques at have already been developed. ut, the banks are also raising fur- er questions. Admittedly, soil tests re quick and easy and generally ceptable, but fall somewhat short providing all of the data needed on lant food availability in the soil. he foliation tests prepared at most olleges have been adding to the nowledge in this field.

We are aware that questions have been raised about the theory of the ability of plants to utilize the min- erals that are in the soil. For ex- ample, most soil tests indicate there is no need for potassium in our mountain and most western soils. It's reflected in fertilizer rec- ommendations from agriculture ex- periment stations in Colorado, Ari- zona, Utah and Washington, and in many reports from California and Oregon. However, reports prepared in California and Utah, the latter from research at the Brigham Young University, show that by the Aspergillus niger test, some Utah and California soils show a marked response to potassium fertilizer. This is not confined to celery pro- ducing areas.

There is a great deal more to be earned. We no longer say sulfur is ot important in our mineral soils. We are aware of the problems of the race elements and the need for these n animal feed. My point is this, we want to use all knowledge available to recommend the best possible prac- tices. We want to suggest further tests and research to improve possible recommendations that might be made.

There are a few additional sug- gestions. The farmer perhaps needs some farm maps to accompany his budget and farm planning programs. These maps (overlay of cellophane) might show when, what plant food was applied, and in what form— liquid, or as a single plant food or combination—sulfate or nitrate form of nitrogen, super, treble ammoniat- ed, or liquid phosphate. What were the results?

Incidentally, the banks could well use such data. With minor exceptions, most bankers are willing to learn from you and others—and to teach.

Hooker to Build New Research Center

NIAGARA FALLS, N.Y.—Construc- tion of the Hooker Research Center on Grand Island, N.Y., is to begin in mid-October, it is announced to- day by Bjarne Klaussen, president of Hooker Electrochemical Co., Niagara Falls, N.Y. The initial facilities will be completed by late 1958 or early 1959.

Costing approximately $3,500,000, the new center will provide space for about 200 personnel. The com- pany, however, envisions and is planning for considerable expansion of the facilities in the years ahead, Mr. Klaussen said.

James A. Stanphill

B. V. Bender

James Q. Stanphill Named IMC Plant Food District Sales Head

CHICAGO—International Minerals & Chemical Corp. has announced the appointment of James Q. Stanphill as district sales manager for the Flor- ence, Ala., district of the Plant Food Division. Mr. Stanphill succeeds B. V. Bender, who recently retired under the company's pension plan after 44 years of service with IMC.

Mr. Stanphill, a native of Franklin County, Alabama, joined Internation- al immediately after his graduation from Alabama Polytechnic Institute in 1953. He worked in sales in the Cullman, Ala., and Pensacola, Fla., territories until 1956, when he be- came assistant district sales manager of the Florence district, made up of northern Alabama and two tiers of counties in Tennessee north of the Alabama line.

Mr. Bender, who had been district sales manager since soon after his employment by International in 1913, continues to make his home at Flor- ence.

American Potash Opens New District Office in Columbus

COLUMBUS, OHIO — American Potash & Chemical Corp. has opened a new district office here, covering outlets in Ohio, eastern Indiana, southern Michigan and Kentucky.

Chester A. Lawton, who has been with AP&CC since 1950 as district representative in the midwestern area, has been appointed manager of the new district office, which is lo- cated at 12 N. 3rd St. in Columbus.

Opening of the office is part of a territorial realignment begun three years ago by AP&CC to accommo- date the company's greatly increased sales in recent years, according to William J. F. Francis, AP&CC vice president in charge of sales.

"To handle expanded sales during the past five years, we've enlarged the sales staff from 13 to 34 men," Mr. Francis said, "and we plan a continued increase in the next few years."

Mr. Lawton will be in charge of all company product sales in the new territory under the direction of A. J. Dirksen and E. M. Kolb, eastern general sales managers of AP&CC's industrial chemicals division and heavy chemicals division, respective- ly.

Monsanto Sales, Earnings Show Gain

ST. LOUIS—Sales for the first nine months of 1957 for Monsanto Chemi- cal Co. and its domestic and Cana- dian subsidiaries amounted to $436,- 790,000, an increase of 7% over the sales of $407,381,000 for the corre- sponding period in 1956.

Earnings were $30,974,000, equal to $1.44 a share on the 21,465,813 shares now outstanding. For the same period last year, on 21,446,461 shares outstanding last Dec. 31, the amounts were $28,813,000 and $1.35, respec- tively. Third quarter sales in 1957 were $139,644,000, an increase of 10% over sales of $127,124,000 for the same quarter in 1956.

Net income for the third quarter of 1957 was $8,810,000, equal to 41¢ a share, which compares with $6,- 838,000, or 32¢ a share, for the same quarter of 1956.

Net income of the consolidated companies, together with Monsanto's proportionate share of the undistrib- uted income of its domestic 50% owned associated companies, was $37,943,000 for the first nine months of 1957, compared with net income of $31,710,000 for the first three quarters of 1956. The 50% owned companies of Monsanto are the Chemstrand Corp., Mobay Chemical Co. and Shawinigan Resins Corp.

Monsanto's equity in undistributed earnings of the domestic associated companies was 33¢ a share for the first nine months of 1957, compared with 13¢ for 1956.

SOIL JUDGING CONTEST

PORTLAND, ORE. — A statewide Oregon soil judging contest is sched- uled at Tillamook Nov. 20 with cash awards offered the best two-man teams from among more than 300 Oregon soil conservation district su- pervisors. Arthur King, Oregon State College soil conservation specialist in charge of contest arrangements, says it will be a first of its kind in the Pacific Northwest. It is sponsored by the board of directors of the Oregon Association of Soil Conservation dis- tricts and Pacific Supply Cooperative.

National Potash to Handle Eymann Granulation Process

NEW YORK—National Potash Co. has been licensed to make the Ey- mann process of batch granulating available to the fertilizer industry, according to an announcement made by William B. Porterfield, vice presi- dent and sales manager of National. The process, said to be the first suc- cessful one to produce granular ma- terials in batch, was developed by Lewis Eymann, president and co- owner of the North-Ag Chemical and Supply Co., Forest City, Iowa.

Two plants have been utilizing this process for almost a year, one starting in November, 1956, and the other in January of this year. Both plants report that their products have good quality both from the standpoint of granularity and stor- ability.

Production rates, in one-ton mix- ers, ranged from 12 to 20 tons an hour, depending on the grade, it is reported. Grades ranged from 3-12- 12 to 5-20-20 to 10-10-10.

Mr. Porterfield, in commenting on the process, says that National Pot- ash is offering it as a service to the fertilizer industry. "National's tech- nical service staff will assist in in- stalling the process, and appropriate arrangements will be made with re- spect to patent rights for the mutual protection of all concerned," he said.

California Chemical Employment Shows Gain

SAN FRANCISCO — Employment in the chemical manufacturing indus- try was up again in August to a new high for the month in California.

The bureau of labor statistics of the State Department of Industrial Relations estimated an average of 39,500 wage and salary workers turn- ing out all kinds of chemicals, an increase of 100 from the previous month, and 1,100 from August of the year before.

Earnings of the production work- er segment had also risen more than $3 a week on the average between the two Augusts — from $95.65 to $98.90. Average hourly earnings had moved up from $2.28 to $2.40, and the work week was down during that month from 42 hours to 41.3.

In the Los Angeles - Long Beach Metropolitan area the division found an estimated 21,500 wage and sal- ary workers in August, a rise from 21,300 twelve months before. In the San Francisco Bay area the increase between August of last year and Au- gust, 1957, was from 12,100 work- ers to 12,600, or together accounting for all but 5,400 of the state's total.

There were 700 additional em- ployees in San Jose, 400 in the San Diego area, leaving 4,300 scattered throughout the state.

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WESTERN AG CHEM GROUP

(Continued from page 1)

or two, as contrasted to commercial operations of much larger extent.

The speakers told their western audience that the biggest volume of pesticides in the areas surveyed, is sold through dealers. They pointed out that although some of these practices might differ with the far west in the matter of distribution, the basic motivations as to whom influences the farmer to buy, are similar.

Farmers' attitudes are formed through community standing, the speakers said, based on a system of values in the locality in which a given farmer lives. This has a bearing on the speed with which adoption of a certain practice is achieved as the last of several steps leading up to final adoption.

These steps, the speakers said, are first the awareness stage, in which the grower learns about a product or practice, but lacks details other than mere knowledge that it exists.

Later, the information stage comes wherein the farmer learns more about the product, develops a little interest in it, and seeks more facts as to how it works. It is in this stage, the sociologists said, that the farmer begins to see the possibility of the product's usefulness.

After having gone this far in his toying with the general idea, he begins to think more in terms of evaluation, weighing the alternatives involved, and considering how the new idea might work in his specific case. He then takes the step of deciding to make a trial and seeing for himself without risking much of an investment.

In the trial stage, he studies the product and its use under his own conditions, looking at it critically still trying to decide whether he should adopt the idea on a full scale. The decision to adopt a practice is complicated by knowledge that once a commitment is made for adoption, the farmer can hardly back up and change his mind.

The speakers indicated that original awareness of a product came mostly from mass media of various types. Second in importance, as indicated by the surveys, were government extension workers, and next, the influence of neighbors and friends. Last on the list came salesmen and dealers, they said.

Information on the product, once the farmer had become aware of it, was listed in the following order, according to the survey results: 1) mass media; 2) government agencies; 3) neighbors and friends; 4) salesmen.

When it came to evaluation of the product or practice, the speakers reported that the order changed to put neighbors in first place, with government agencies, mass media and salesmen following in that order. The reason for this, it was pointed out, lay in the fact that farmers like to talk over mutual problems and seek each other's opinions on how a practice might work.

The same principle holds in the trial stage and the adoption stage, in both of which the neighbors play an important part in the final decision.

A study of the general type of farmer classified as the "innovator," showed him how to operate a large farm, to possess high status in the community with an old established family background; active in community affairs. He has developed contacts beyond the immediate area where he lives, thus giving him a broader horizon of thinking than many of his neighbors.

The innovator is also likely to seek information beyond the borders of his immediate community, often by-passing even the county agent to contact various authorities at the state college or the U.S. Department of Agriculture.

The early adopters, described as being the first in the community to take on new ideas, are usually the younger farmers with better educations than most of their neighbors. These men participate in various social activities in the community and are likely to be prominent in the affairs of local cooperatives or various agencies. They take and read more bulletins issued by the state and federal agencies, and are always on the lookout for any practice that might result in better profits through efficiency and lower production costs.

In varying degrees below the early adopters, were listed the "early majority," the "majority," and lastly, the "non-adopters."

The early majority group, Drs. Bohlen and Beal said, are of medium stature in the sociological-economic setup of their communities, but they read more bulletins and farm magazines, attend more agricultural meetings than do the average farmers. At the same time, they are a little behind the innovators in adoption of new ideas.

In contrast to these, are the farmers making up the majority, who are older, having a little less education and less social standing and who take only minor interest in community affairs. They are also characterized by their failure to read many farm papers and bulletins.

At the bottom of the heap are the non-adopters who steadfastly refuse to accept new ideas even if they have been tried and chosen by the rest of the community. Their associations are almost entirely among relatives of the same general makeup as themselves, and as the speakers put it, they "get together on Sunday picnics and pool their ignorance."

In answer to a question from the floor, the sociologists said that the percentage of farmers classified as innovators would be about 4%; early adopters, 6%; early majority, 13%, and majority, 60%. The non-adopters would comprise about 17% of the total, they said.

William A. Harvey, University of California, Davis, an authority on weed control, discussed the "Economic Aspects of Controlling Unwanted Vegetation." Developing his theme, Mr. Harvey pointed out the heavy losses suffered by California's agriculture from the presence of weeds. Dryland crops in the state suffer losses of around $10 million, while irrigated lands are hurt to the extent of $163 million, he reported. Weeds also use prodigal amounts of moisture, he said, totaling some 400,000 acre-feet of water which he reminded, is expensive business.

In the face of all these losses attributed to weeds, Mr. Harvey pointed out that efforts toward control of this unwanted vegetation is relatively small. He suggested that there should be more information available as to the amount and kinds of weed research being conducted currently, how much money is being devoted to these projects, and the number of men involved in it.

Weed losses in specific crops were outlined by Mr. Harvey, with special emphasis being laid on the contrast between the losses and the relatively small amounts of money being spent for pesticides to reduce them. California suffers from $250 million to $333 million loss from weeds each year, and spends only about 3% on efforts to control them by chemical means.

Mr. Harvey presented statistical evidence of the job to be done in weed control in California, by stating that with 100 million acres of land, some 10 million acres are farm land, seven million of which are under irrigation.

An additional 25 million acres comprise barren and desert lands, but weed control can be practiced there to some extent, economically. Another 25 million acres are in forests, which are in need of brush and vegetation control; 27 million acres in brush lands which could well be reclaimed for economic use; and 10 million acres in grass range lands which present a veritable frontier to rid them of poisonous weeds and other unwanted growth.

So far as weed control is concerned, Mr. Harvey said, we have "just been tinkering around" with these 100 million cares. He said that weed control is larger than agriculture itself, with railroads, public utilities, fire districts, city engineers, park superintendents, federal lands and even the army and navy having strong interests in weed control.

The speaker urged the industry people present to learn all they possibly can about their respective products; their methods of killing plants; whether they are absorbed via the plant's leaves, or roots; and how specific the herbicide might be for certain species. He said that weed control study is a job for scientists-trained in plant physiology, and further, that such scientists should test their herbicidal products under western climatic conditions if the material is to be used in that area.

A definite sales program is needed to reach full potentials, with demonstrations and service playing a prominent part in the process. He said that pre-emergent products are hard to sell, as are soil sterilants, since farmers want to be able to see what is happening. "They are reluctant to pay for killing weeds that aren't up yet," he said. Some farmers, he declared, think along the line of "maybe this won't be a bad weed year . . . we'll wait and see."

Mr. Harvey condemned the cutting of prices in order to gain an edge over competition. "Cut prices can trap a farmer as well as the industry," he said. "If there's not enough profit in selling a product to allow for service, then the user is not likely to get first class results and will cease to be a good customer."

Allen B. Lemmon, chief of the bureau of plant industry, California State Department of Agriculture, Sacramento, told his audience of the activities of the state's pest detection programs. These are set up to halt the entry of plant disease and insects into the state, he said, and have thus far been effective in this endeavor.

During August this year, he reported, some 582,692 cars were inspected, and in these were found 8,786 lots of plant material carrying 882 lots of insects; 332 lots of plant diseases, and 36 lots of weeds. Insect pests thus intercepted included a number of potentially serious ones not now a factor in California agriculture: boll weevil, plum curculio; sweet potato weevil; citrus white fly; lesser snow scale; European corn borer and apple maggot. This work is carried out through the cooperative efforts of the State Department of Agriculture, county agricultural commissioners, and the U.S. Department of Agriculture.

Mr. Lemmon gave a brief history of other insect pests and their control in California. The Mexican bean beetle was eradicated from the state after having been discovered in Ventura County, but there is a constant threat from various fruit flies which are being guarded against continually. Foremost in this category is the Mexican fruit fly which could cause great economic loss if it should become established in the state.

The melon fly and Oriental fruit fly are presently in Hawaii, he said, and every effort is being made through cooperating agencies, to guard against its entry.

The melon fly was once found in the Los Angeles area, he said, and action was immediate to determine whether others were present also. Five thousand traps were set up in a 5-mile radius of the spot, and 2,500 traps were set further away. All were watched closely, but no more of the flies were found and the threat faded. Should the melon fly become populous, it would attack melons, cantaloupes, cucumbers, squashes, pumpkins and beans. Control would have been difficult and costly, Mr. Lemmon said.

Hall scale, first found in 1934 near Chico, Cal., survived early attempts to eradicate it, but now a cooperative effort between Federal and State agencies shows promise of ridding the state of the pest.

Another expensive pest found in the state and now thought to be under

OFFICERS ELECTED

SAN MATEO, CAL.—Officers elected at the meeting of the Western Agricultural Chemicals Assn. here Oct. 7-8, were announced as follows:

Ivor Burden, United Chemical Co., Richmond, Cal., president; Tom Castle, A. L. Castle Chemical Co., Mountain View, Cal., vice president; and Charles O. Barnard, San Jose, Cal., secretary-treasurer.

Mr. Burden succeeds A. F. Kirkpatrick, American Cyanamid Co., as president, and Mr. Barnard was re-elected to the position of secretary-treasurer.

WHAT'S THEIR LINE? This bit of fun is a preview from a series of nationwide dealer meetings to be held later this year by California Spray-Chemical Corp. to spark Ortho sales in 1958. Lou Czufin, Ortho's advertising manager, is shown with a lady from outer space, Paula Lane. Home and garden specialists from Calspray's marketing department and merchandising and advertising divisions recently completed a swing of 13 U.S. cities where they discussed 1958 merchandising plans with Ortho distributors. Mr. Czufin and the team of home and garden specialists will present the merchandising plan to the dealers at the meetings to be held later this year.

ontrol, is the khapra beetle which as discovered in Tulare County in 953, but thought to have been in the tate since 1946. Mr. Lemmon report- d that to date some 300 warehouses ave been fumigated, setting a record f over 85 million cubic feet of space us treated.

As to weed control, Mr. Lemmon eiterated its importance by stating hat weed control should be exercised n the farm, rather than attempting o separate weed seeds from grain in erminals.

Pointing out that "agribusiness" in California represents far more than the actual value of products raised and sold, the speaker reminded his audience that many other enterprises were also dependent upon agriculture and that the machinery sold, the cars, trucks, and tractors all help to boost the general economy of the state.

"The more we can help the farmer o control pests, the better he can do is job and be prosperous," Mr. Lemon concluded.

In a talk on nematodes and the application of nematocides, Dr. M. W. llen, University of California at erkeley, discussed the complicated icture of nematodes and their conrol.

In order to prepare an effective rogram of control, it is necessary to etermine the species involved, and s life cycles so that the parasite ight be attacked at its most vulerable stage. With hundreds of spe- ies existing in all parts of the coun- ry in different climates and in va- ious crops and soils, the problem is ot a simple one, he said.

In addition to determining the type f nematode and its life cycle, it is lso necessary to know the soil type, nd its characteristics. Is the soil andy? Is is easily penetrated by the hemical expected to be used for con- rol? Are there other considerations o be taken into account in knowing he kind of soil involved? These are uestions that need to be answered in he process of finding adequate con- rols for nematodes.

In addition, the answers to the first wo questions covering the species of ematodes and the soil in which it is ound, should form the basis of a de- ision as to the type of nematocide to e used.

Of all the factors, Dr. Allen said, he soil itself is one of the most im- portant, since its tilth at the time of reatment, and its moisture content an dictate largely the effectiveness f any control program.

SOIL BANK

(Continued from page 1)

cies than would the individual crops hat are replaced.

A blister beetle problem is a natural accompaniment of the grasshopper problem. Although the adult blister beetles are pests, the larval forms feed on grasshopper eggs, and as such are beneficial.

Cutworms, wireworms, white grubs, Japanese beetle, European chafer, sod webworms, and corn flea beetles are likely to build up in sod or fallow land, and damage subsequent crops grown thereon.

Armyworms and certain flea beetles may develop in meadows and invade cultivated crops when the meadows or pastures are moved or dried up.

Thrips, aphids, spider mites, and Lygus bugs are likely to increase on grasses and soil building legumes substituted for basic crops and then migrate to and damage other crops. For example, the pea aphid develops on alfalfa and may migrate to and severely damage peas through transmission of diseases.

Leafhoppers reproduce on alfalfa and a variety of other cultivated or non-cultivated host plants and then migrate to other crops or into new areas. The potato leafhopper may migrate to crops in areas where they develop or migrate hundreds of miles into new areas. The beet leafhoppers in the Western and Great Plains areas may develop on favorable host plants on retired areas and later invade cultivated areas, to transmit curly top disease to a variety of vegetable crops as well as sugar beets.

Stinkbug populations are known to increase on legume crops and on certain plants growing in idle lands. These often migrate to crops and damage them.

Nantucket tip moths, the pales weevil, and other forest insect pests will increase on the additional trees planted under the program.

At the same time, however, the undisturbed idle land will provide more favorable nesting sites for wild pollinating bees. Replacing large acreages of single crops with diversified crops or multiple wild plants, will permit mixed populations of insects. Parasites and predators that breed on them may migrate to crop lands and aid in control of insect pests. Diversified crops and additional wild plants would help the beekeeping industry in the production of more honey and in strengthening colonies for pollination of plants. In some instances, however, competing wild host plants and seeded crops on reserved acreages might draw bees from colonies intended to pollinate the cultivated crops.

Soil bank acreages might serve as trap crop areas that could be sprayed for control of migratory insects such as the alfalfa leafhopper when they have moved in following the cutting of cultivated crops.

"The changes in land utilization brought about by the soil bank program will have an effect on insect populations," the statement says. "These changes will affect not only the land in the soil bank but also adjacent areas. They will be different in different places and may or may not have an appreciable effect on agricultural production. Adequate observations to determine what significant changes are taking place in all areas as a result of the soil bank program are necessary to provide facts on which to base forecasts of insect population before destructive numbers of pests including plant disease carriers have developed. Such observations will need to be made for each farming area and records maintained that are readily available and interpretable."

Contributors to the statement were listed as Kelvin Dorward, M. P. Jones, E. R. McGovran, and E. F. Knipling, chairman.

Spencer to Dedicate New Research Center

KANSAS CITY—Spencer Chemical Co. has announced plans for the dedication of its new research center in suburban Kansas City Oct. 22. Dr. Charles N. Kimball, president of the Midwest Research Institute, will be the principal speaker at a dinner following the dedication ceremonies.

The new center is located at 9009 W. 67th St. in Johnson County, Kansas, and borders on Highway 50 just south of its junction with Highway 69.

The center will be devoted to research and development of new and improved products in the general fields of agricultural and industrial chemicals and plastics. Until recently, Spencer's principal research facilities were located at the company's Jayhawk Works, 20 miles south of Pittsburg, Kansas.

BECKMAN APPOINTMENT

LOS ANGELES—Joseph W. Lewis has been appointed as an assistant to the president of Beckman Instruments, Inc., the company has announced. Mr. Lewis was formerly manager of Arnold O. Beckman, Inc., South Pasadena, Cal., and before that was associated with U.S. Steel Products Co. as industrial relations manager and in other executive positions.

Books on Soils and Soil Management

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The theme of the book is the necessity of chemical fertilizers to maintain the fertility of the soil. It has concise information on which soil conditions and which chemical fertilizers are most suited for special crops and vegetables. Space is devoted to cereal crops, barley, wheat, oats and rye; to roots and tubers, sugar beets, potatoes, carrots, parsnips and turnips; to vegetable crops, beans, peas, alfalfa, lupines; to grasses and clovers; to onions, flax, kale, cabbages, lettuce, tomatoes, celery, cauliflower and fruits. It clarifies the relationship of manures, compost and chemicals as fertilizers and points out how chemicals should be used to obtain the best results. Its philosophical soundness and logic should do much to avert the confusion of thought introduced by the advocates of compost and manure as against the use of chemical fertilizers **$8.50**

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

EMBATTLED CALIFORNIANS . . .

Industry Opposes Increase in Truck Rates

A truck transportation hassle is coming to a head rapidly in California, and its outcome will be of direct importance to both the insecticide and fertilizer trades in the west. The state's trucking association has asked the California Public Utilities Commission to establish a schedule of minimum rates covering truck transportation of fertilizers (including anhydrous ammonia), and all other dry and liquid materials, which would of course include pesticides. If this petition were granted, hauling rates would jump to levels which the trades involved could not possibly absorb. In some instances, the jump would be as much as 70%, with an average of around 50%.

Under present conditions, the movement of hundreds of thousands of tons of fertilizers and other agricultural minerals has been governed by negotiated rates, giving shippers the benefit of reduced tariffs in both directions in the numerous instances where back-hauls have been assured. Under the system proposed by the truckers, however, a minimum charge would be set by law thus cancelling out the benefits of efficient truck operation which now accrues to the shipper.

Industry groups in California have voiced strong objections to the proposed application, pointing out to the Public Utilities Commission that neither the fertilizer nor the pesticide trades can absorb such steep increases, and the result will be greatly expanded use of proprietary trucking and a drastic reduction in the use of for-hire hauls.

Sidney H. Bierly, general manager of the California Fertilizer Assn. has voiced the sentiments of the industry in protests to the California PUC, pointing out to that group some of the facts of life regarding the industry's economic setup.

We should think that some of the figures quoted by Mr. Bierly in his statements to the PUC would make those gentlemen sit up and take notice, particularly in view of the industry's threat to seek other means of transporting fertilizer. Mr. Bierly said that last year, the industry sold 1,052,124 tons of fertilizer, plus 812,597 tons of agricultural minerals in California. "Practically all of this material moved at some point or points during its distribution by for-hire or proprietary truck," he reported.

The extent to which truck rates would advance under the proposed minimum charge plan was covered in Mr. Bierly's memo to the PUC. "We were recently privileged to see these proposed schedules for anhydrous ammonia and liquid fertilizers," he said, "following which we made a survey among those who would be affected in our industry to determine the average charges now being paid for negotiated truck hauling. In one category, that of 40% ammonium nitrate solution, the average rate for one haul is now $6, and it would be increased to $10.20, or exactly 70%. All other categories would be increased materially, many by 50% or more.

"Our industry, like most others, has been faced with ever-increasing costs for labor, materials, transportation, taxes, fuel, upkeep, etc., and has long since absorbed all these increased costs to the limits of its ability. Any increases which would be imposed by the truckers proposed rate schedule would have to be passed on to our customers, about 90% of the tonnage going to agriculture. As you know, our farmers now find themselves in a tight cost-price squeeze. We are sure that the volume of their purchases will decline if we are forced to raise our prices.

"We contend that the present arrangement is elastic enough to permit adjustments for increased cost of operating truck equipment, and that it is equitable for all concerned. We do not feel that any rigid rate schedule would be in the public interest."

Mr. Bierly reminded the PUC flatly that the fertilizer industry will refuse to submit to the imposition of a schedule of rates. "It is a substantial industry, and as its only alternative, it will go heavily into proprietary trucking," he said. "It may be well to point out that at the present time, proprietary trucking in the fertilizer industry is a very minor factor."

Mr. Bierly declared that this situation could very quickly switch, just as it has done in the petroleum business since arbitrary rate schedules were imposed on it some years ago.

The fertilizer and pesticide industry doing business in states other than California will be looking in on the developments there with interest born of knowledge that the same situation might arise in any area. This will be particularly true, of course, if the California truckers get the nod and are awarded the minimum rate schedule.

Transportation of thousands of tons of materials is a matter of great expense to the industries concerned, and it is unthinkable to add substantially to this cost. The prospect of increases of 50% or more leaves one with the cold chills and would without doubt send many scurrying about seeking less expensive ways to handle the industry's commerce. This would mean the purchasing of company trucks to do the job, an alternative which also calls for a good-sized capital investment.

It boils down to a basic question that no one wants to face . . . namely, whether added costs like this can be passed on to the farmer without a considerable loss in tonnage. One thing is certain: the industry, with its slim margin of profit on plant food materials, simply cannot absorb added costs of transportation.

The dilemma is one which the California Public Utilities Commission can help solve by refusing to grant the trucking association's demands.

Amazing Returns Outlined

"The plant food industry has a growth potential much greater than that of any industry I know—either established or new. The profitableness of using fertilizer has been established and demonstrated for as long as I can remember, which is for more than a half century. This has been called to the attention of every farmer and other persons that can hear, read or see.

"Fertilizer pays dividends that are almost unbelievable to business investors in general or to farmers. Let us consider the returns on some popular investments. At recent prices, investments in General Motors pay 5.1%; in U.S. Steel, 4.5%; in Standard Oil of New Jersey, 3.9%; in General Electric, 3.7%; and in Du Pont, 3.6%. Yet, businessmen are investing 3 million dollars a day in these securities.

"Compare the returns on these to those received from fertilizer. The data in the form that suited me best were from below average land in the corn belt that was planted to corn. The corn was valued at $1.20 per bushel. The first $6 worth of plant food per acre returned 291%; an additional $6 worth returned 227%, and so on, and they had to use $40 worth per acre before the returns on the last addition declined to 5%."—**Gordon Nance, Missouri Agricultural Economist.**

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

Nov. 12-13—Thirteenth Annual Wyoming Weed and Pest Control Conference, Cody Auditorium, Cody, Wyo.

Nov. 20—Annual Rutgers Pesticide Conference, University Commons, New Brunswick, N.J.

Nov. 21-22—Seventh Annual Arkansas Fertilizer School, Marion Hotel, Little Rock, Ark.

Nov. 26 — Manufacturing Chemists Assn., 7th Semi-Annual Meeting and Winter Conference, Hotel Statler, New York.

Dec. 4-5—Twelfth Annual Hybrid Corn Industry-Research Conference, La Salle Hotel, Chicago, Ill.

1958

Jan. 14-16—Nebraska Fertilizer, Machinery and Chemical Exposition, Sponsored by the Nebraska Fertilizer Institute with the Nebraska College of Agriculture, Pershing Auditorium, Lincoln, Neb.

Feb. 4-6—North Carolina Pest Control Operators' Short Course, College Union, Raleigh, N.C. Clyde F. Smith, Dept. of Entomology, N.C. State College, secretary.

EDITOR'S NOTE — The listings above are appearing in this column for the first time this week.

Oct. 21-22—Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago.

Oct. 21-24—National Pest Control Assn., Annual Convention, Brown Hotel, Louisville.

Oct. 25—Conference, Tennessee Valley Authority, Mississippi State College and fertilizer distributors, Mississippi State College, State College, Miss.

Oct. 29—Grassland Farming Conference, Rutgers University, New Brunswick, N.J.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Oct. 31—19th annual meeting, Middle West Soil Improvement Committee, Sherman Hotel, Chicago. Z. H. Beers, 228 N. LaSalle St., Chicago, executive secretary.

Oct. 31-Nov. 1—Second Annual Southern Fertilizer Conference and Second Annual Southern Soil Fertility Conference, Dinkler Plaza Hotel, Atlanta, Ga.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco, Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 13-15—National Aviation Trades Assn., Annual Convention, Hotel Adolphus, Dallas, Texas.

Nov. 14-15 — Sixth Annual Oregon Weed Conference, Withycombe Hall, Oregon State College, Corvallis, Ore., Rex Warren, Corvallis, Ore., Secretary.

Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Collie, 2217 Tribune Tower, Chicago 11, Ill.

Nov. 18-20—Carolinas-Virginia Pesticide Formulators Assn., Carolina Hotel, Pinehurst, N.C. W. R. Peele, 516 S. Salisbury, Raleigh, N.C., secretary.

Nov. 18-22—International Conference on Citrus Virus Diseases, University of California, Riverside Campus.

Nov. 18-22—American Society of Agronomy, Annual Meeting, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 20-21—Ohio Pesticide Institute, Annual Winter Meeting, Neil House, Columbus, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Wooster, Ohio, Secretary.

Nov. 21—New Jersey Entomological Society, Fall Meeting, New Brunswick, N.J.

Nov. 25—Oklahoma Fertilizer Dealers Conference, Oklahoma State University, Stillwater, Okla.

Nov. 25-26—Entomological Society of America, Eastern Branch Meeting, Commodore Hotel, New York, B. F. Driggers, New Jersey Agricultural Experiment Station, New Brunswick, N.J., Branch Secretary.

Nov. 26—Oklahoma Soils and Crops Conference, Oklahoma State University, Stillwater, Okla.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 2-6—Exposition of Chemical Industries, New York Coliseum.

Dec. 3-4—Iowa State College Fertilizer Manufacturer's Conference and Fertilizer Dealers' Short Course, Memorial Union, Iowa State College campus, Ames, Ia.

Dec. 4-6—Soil Science Society of Florida, Annual Meeting, Fertilizer Symposium on Dec. 5, University of Florida, Gainesville.

Dec. 5—Second Annual New Mexico Irrigation Exposition, Eastern New Mexico Fairgrounds, Roswell, N.M.; Al W. Woodburn and William Harr, c/o Southwest Public Service Co., Roswell, co-chairmen.

Dec. 6—Eighth Annual Fertilizer Dealers Short Course, South Dakota State College, Brookings, S.D.

Dec. 8-12—Vegetable Growers Association of America convention, Jung Hotel, New Orleans, La.

Dec. 9—Soils and Fertilizer Short Course, St. Paul Campus, University of Minnesota.

Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.

Dec. 10-12 — North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, Program Chairman.

Dec. 11-13 — Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 8-10—Northeastern Weed Control Conference, Hotel New Yorker, New York, R. J. Aldrich, Rutgers University, New Brunswick, N.J., Secretary.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 14-15—Georgia Plant Food Educational Society, Annual Meeting, University of Georgia, Athens, Ga., Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta, Ga., Secretary-Treasurer.

Jan. 20-21—Pest-O-Rama, sponsored by the Alabama Association for Control of Economic Pests, Coliseum, Montgomery, Ala., W. G. Eden, P.O. Box 626, Montgomery, Ala., Secretary-Treasurer.

Jan. 21-22—North Carolina Pesticide School, College Union Bldg., North Carolina State College, Raleigh.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

Feb. 20-22—Nitrogen Conference, University of Minnesota, St. Paul. M. W. Mawhinney, Smith-Douglass Co., Albert Lea, Minn., Chairman.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

Fertilizer Exposition Scheduled in Nebraska

LINCOLN, NEB. — A Nebraska Fertilizer, Machinery and Chemical Exposition will be held at the Pershing Auditorium here Jan. 14-16, according to Leo L. Johnson, field secretary of the Nebraska Fertilizer Institute. The event will be sponsored by the Institute and the Nebraska College of Agriculture.

Mr. Johnson said that the displays will include exhibits from the fertilizer industry, fertilizer equipment companies and chemical firms. Inquiries may be directed to either Mr. Johnson or Howard W. Elm at the Institute, 917 Trust Bldg., Lincoln 8, Neb.

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Federal Aid Asked

MILTON-FREEWATER, ORE. — Some 285 fruit growers here have signed applications for federal aid in orchard rehabilitation and another 30 are expected to apply. The signup represents about 4,000 acres of orchard land near Milton-Freewater. The additional growers expected to apply represent about 150 acres, says James Beamer, chairman of the Umatilla County Agricultural Stabilization and Conservation Committee. The total amount of orchardists' requests for aid is about $150,000, Mr. Beamer said. Another $10,000 or slightly more would be added by growers not yet signed, it is estimated. A check with Earl Brown, Umatilla county agent at Milton-Freewater, indicates that this district's prune growers were literally put out of business by the November, 1955, freeze and are only expected to account for 600 tons of prunes this year. This compares with the big 1955 crop of 15,600 tons.

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